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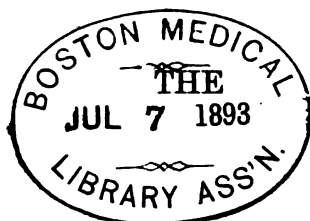
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GLASGOW MEDICAL JOURNAL.

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EDITED BY

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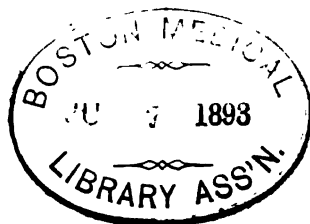
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ORIGINAL ARTICLES.

THE ANTISEPTIC TREATMENT OF BURNS.*

By A. ERNEST MAYLARD, B.S. LOND.,
Senior Surgeon to the Victoria Infirmary.

To ask your attention, gentlemen, to consider for a few minutes the simple subject of the treatment of burns almost calls for an apology. With the many big, and new, and valuable things that surgery has nowadays to deal with, one may well hesitate before venturing to occupy your time with a matter apparently so trivial, and withal so commonplace, as that for which I now briefly ask your indulgence. But, as has been well said, much of our surgery, for some time to come, must consist in the perfecting of details, and we cannot do better, often, than think for a moment over some old stereotyped practice, which age has so habituated and custom so indelibly stamped, and try to see whether the methods of treatment adopted are in accordance with, and subject to, those higher principles which we have learnt to advantageously apply along other more advanced lines of surgery.

Let, then, some such critical spirit occupy our attention with regard to the present subject, and I hope the result will be that you will be willing with me to carry the treatment of burns out of its present somewhat narrow and limited sphere,

* Read before the Medico-Chirurgical Society of Glasgow on 4th December, 1891.

and to make it part of the practice of that larger principle of antiseptics; to advocate, in short, for the treatment of burns, all those details of practice which we are accustomed to follow in the treatment of any other kind of wound.

A burn is a lesion often much more destructive in its effects than many an extensive laceration of soft parts by physical violence. Except in burns of the first degree, there is of necessity some death of tissue, but such death of soft parts may be very slight in even extensive wounds by other means. The tissues killed by a burn, especially in those of the higher degrees, remain intimately connected with the undestroyed tissue around, and are not cast off except by the natural expulsive forces of repair. It is these dead tissues which, becoming septic, produce the offensive odour, the excessive purulent discharge, the great pain, and all the discomfort and inconvenience, not to talk of the danger, connected with the process of healing in severe and protracted cases. Now, what I want to advocate this evening is a method of antiseptic treatment that shall entirely prevent this series of septic results, and place a burn wound on exactly the same footing as any other kind of traumatic lesion.

When a part has been burned, whether by fire, water, metal, or other means, we may justly assume that the part has at the same time been sterilised; that is to say, heat has effected what we similarly effect under other circumstances by the use of our antiseptic solutions. Now, if heat has thus asepticised a part, ought we not, with equal, if not with greater reason, to endeavour to keep it aseptic than in the case of any other wound. I say, with greater reason, because we have to deal with a mass of dead tissue, in the severer cases, which, unless kept aseptic, will putrefy, and be accompanied by the ill consequent on such putrefaction.

In contrasting wounds produced by heat with those resulting from other physical causes, there is one symptom which stands out prominently as distinguishing the one from the other, and that is pain. But this very symptom, when the immediate effects of the injury have passed off, is directly proportionate to the inflammation which ensues in and around the lesion, and also to the mechanical irritation of the surface of the wound. If, then, we can prevent these disturbing factors of inflammation and irritation, we ought to prevent pain, and this it is quite possible to do. I may incidentally remark here that almost all treatment of burns in the past has been based on the principle of preventing the mechanical irritation of the surface of a hypersensitive wound; and

hence has come into use the application of all kinds of oils and ointments, and other such greasy preparations. As the result also of some antiseptic tentative measures, to such preparations has been added some kind of an antiseptic. However efficiently they may answer the purpose of preventing irritation, they are certainly not efficient in the matter of their antiseptic powers, and carry with them in their use so many other attendant disadvantages that some substitute devoid of these latter, but fulfilling all other requirements, is much needed.

I think I have now said enough to introduce the method of treatment itself to you; and I proposed doing so by giving in detail the measures adopted in treating—we will say, for example—a burn of the third, fourth, or higher degree, produced by fire.

Such clothes as can be conveniently removed are taken off; others that are more intimately connected to the part are cut away. The wound, when exposed, is washed with a warm solution of 1 in 2,000 bichloride of mercury, in order more easily to remove any fragments of foreign material, or to impregnate such as remain irremovable. It is then covered with perforated green protective (oiled silk), also steeped in the solution. Over this is placed a piece of boracic lint, wrung out of the same solution, and this again is covered completely by gutta percha tissue. The whole is enveloped in sublimated gamgee tissue, and secured with a bandage. This dressing is kept on for two, three, or more days, according to the amount of discharge which, as soon as it appears through the dressing, necessitates the removal of the latter. When the dressing is renewed, it will frequently be found that the protective and gutta percha tissue, after being cleansed, can be used again. The protective may sometimes be omitted from the dressing. I will now give a few cases, which have been admitted under my care into the Victoria Infirmary, in illustration of this method of treatment.

CASE I.—A boy, aged 17, admitted with a burn of the third degree, involving both legs extensively and the genitals. It was caused by an accidental jump into a furnace. He suffered severely from shock.

The burned parts were dressed as above described. Four days later the dressings were changed. Several large sloughs were separating. All parts were quite sweet and free from inflammation, except the upper part of the thighs and the genitals—that is to say, the part soiled by the urine. The

patient still suffered greatly from shock, from which he never rallied, and sank on the 8th day.

CASE II.—A boy, aged 15, admitted with an external burn of the third and fourth degree, involving the right leg from knee to ankle, produced by fire. When admitted, his leg was found covered with oil and wool. Bichloride ablutions, and dressings applied. The following day the part was very painful, and smelling. Temperature, 102° ; washed and redressed. The second day, temperature slightly lower. Still some smell and pain during dressing. On the 14th day only the slightest stain on dressing. No smell, and a complete absence of pain. Temperature normal. Numerous greyish sloughs are separating quietly.

In this case there are one or two points I would like specially to draw attention to, and I think they are very interesting and instructive, as showing the value of the antiseptic treatment. In the first place, this boy had already received treatment before he came under our hands. As stated, he had "oil and wool" put on to the wounds. Now, when once a part has become greasy, it is very difficult, and indeed impossible, to get all the oil or ointment away for some days; and so long as it remains on a part it is equally impossible to get the antiseptic watery solution in contact with all the tissue. During this time, therefore, there is every opportunity for the sloughs to become septic and excite inflammation in the surrounding tissues. This inflammation means pain, purulent discharge, and smell. Hence, the original treatment had been the means of placing our subsequent antiseptic measures in the more difficult position of endeavouring to remedy the ills thus early initiated, rather than of preventing their appearance as could otherwise have been done. I believe I am right in saying that a mal-odour in connection with a wound need be no indication that the wound *is* septic, only that it *has been* septic.* We may sometimes have a slough which smells extremely offensive, and yet our wound in all its reparative process indicating a perfectly aseptic condition. The smell was originally produced by the septic process, but the real result of antiseptic treatment has been to effectively act as a germicide, but not as a deodoriser. So in

* The term "septic" is used to indicate the existence of living microbes in a part, and "aseptic" the non-existence of such active microbes. Hence, a wound in which there still may exist the products of microbes, such as offensive chemical bodies and other compounds, but which appears in no way deleteriously affected by their presence, is considered for all practical purposes "aseptic."

this case, as in others which I have seen, the odour remained much longer than the other manifestation of the original septic process. Whether it is possible or not—and I certainly do not see why it should not be possible—to effectually deodorise an offensive slough is a subject worthy of some thought and trial. The difficulty, I think, largely exists in the often great density and toughness of the sloughs which prevent oxidising agents from permeating the dead tissue. I know how efficient a solution of Condy's fluid is in simple cases, but I have found it useless in such as I am now alluding to. There are other oxidising and deoxidising agents which are worthy of trial, and which I hope to have the opportunity of testing, but the same difficulty of saturating a dense slough will, of course, still exist.

CASE III.—A boy, aged 16, admitted with a burn mostly of the second degree, involving both legs from about midway between the knee and the foot to the ankle, also the right upper arm. It was caused by his falling into a tub of boiling water and trying to save himself. Dressed antiseptically. Redressed on the fourth day, doing well. Third dressing on the tenth day. Left leg and arm quite healed. A small ulcer on the right leg. The latter healed eight days later. It will be observed that in this case, which was, of course, a comparatively slight one, only three dressings were required.

CASE IV.—A man, aged 23, admitted with a burn of face, caused by an explosion in a pipe, which resulted in completely besmearing his face with a quantity of boiling resin. The whole of his face was "caked" with a white solid substance—the hardened resin.

His face, after being washed with a warm solution of 1 in 2,000 bichloride, was covered first with a mask of perforated green protective, then with the lint soaked in the bichloride, and over all the gutta serena tissue; the dressings secured by a bandage. He had to be dressed daily. After the second dressing he became free from pain, and the discharge also became practically *nil*.

With regard to face burns, of which I have had several, but with which I shall not further trouble you, all have been treated in this way. The need to leave orifices for the mouth and nose renders a daily dressing almost imperative. But, if anything, this daily dressing is a source of refreshment to the patient, because it permits of the face being washed and cleansed. I prefer not infrequently to soak the lint in boracic

lotion instead of the mercury solution. The frequent dressings mitigates the necessity of so potent an antiseptic as the bichloride, and although I cannot say I have seen any untoward results from its use, I have felt that it might be sometimes a little too irritative in its action when used on the face.

CASE V.—A boy, aged 19, admitted with a burn of the foot, produced by molten brass. His admission was eight days after receipt of the injury, during which period it had been treated with carron oil. There was considerable discharge and a strong offensive odour. Several patches of slough were seen to be in process of separation. The foot was steeped in a hot solution of 1 in 2,000 bichloride for two hours, and then dressed in the usual way.

Two days after his admission the report contains the following note:—"Healing edges are beginning to show. Temperature 98·6° in the morning, 99·5° last night—no signs of inflammation, no smell, and almost no discharge." A week later the report states—"almost all the ulcers are skinned over—dressed every second day. His temperature uniformly normal for the last five days."

The interest of this case centres mostly in the contrast which it affords between the treatment with such a material as carron oil and the antiseptic method. For eight days the former treatment had been adopted, with the result that the wound discharged abundantly, was excessively offensive, and the patient's temperature above normal—on one occasion 100·8°. The result of only three days' vigorous treatment with bichloride was to asepticise the wound, remove the smell, lessen the discharge, and bring the patient's temperature to normal. I use the word vigorous because of the very powerful effect produced on any septic part by steeping it for prolonged periods in hot solutions of the bichloride. It is a method of treatment I largely employ for many other septic conditions than those produced by burns. Its application is, of course, all but limited to the extremities; but, for affection of these parts, whether of the nature of foetid, sluggish ulcers of the legs, or poisoned wounds of the fingers or hand, its action is most marked and beneficial.

CASE VI.—A boy, aged 14, admitted with an extensive burn, involving both buttocks, penis and scrotum, and both extremities. The burn was of the second and third degree, and was due to boiling water.

When he was admitted he was suffering severely from

shock. The wounds were dressed antiseptically. For three days they were kept sweet, but the constant soaking of the dressing with urine, passed involuntarily, soon rendered them septic, and it became no longer possible to prevent either suppuration, smell, or the consequent pain. We were forced to adopt the following plan:—He was taken and placed bodily, dressings and all, into a hot bath containing a small quantity of Condyl's fluid. The bandages were then cut and the dressings fell off into the water. In this way we were enabled to dress the boy with comparative comfort both to him and ourselves. I merely mention this case to illustrate the great value of Condyl's fluid as a deodoriser. All smell immediately disappeared when the dressings became soaked, and, as I have said, it was a source of great convenience and relief to those who had to dress.

I shall not trouble you further with any more cases. These are a few among many, selected so as to represent cases of burns produced by various agencies, and I think they are sufficient to illustrate the value of this method of treatment.

A few minor points I have not dealt with. There is one, however, upon which there is a little difference of opinion. In burns of the second degree—that is, where the skin or epidermis is raised into large blebs, should or should not the serum be let out? I may say my own opinion is that it should not. In the same case, where blebs existed on both extremities, I snipped the blebs in one and left them intact in the other, with the result that in that limb on which the blebs were unbroken healing took place first. Nature's measures to protect the otherwise exposed *rete mucosum* are better than anything we can artificially apply. Hence, I think, the skin runs less risk of irritation by leaving matters alone than by interfering.

The subject of the antiseptic treatment of burns has been both discussed and practically carried out for some years. In 1887, V. Mosetig Moorhoof published a paper in the *Vien. Med. Presse*. His treatment, however, was not free from what I have rather strongly ventured to deprecate—the use of oily preparations. The use of an oil or an ointment, as already stated, is solely with the object of admitting an easy removal of the dressing, but this is quite as easily effected by the method I employ. A piece of damp lint, practically hermetically sealed by gutta percha tissue, remains damp, and can be as easily removed from a part as an oil dressing. It is only when not so sealed and the discharges dry to the lint

that it becomes both painful and difficult in its removal. I use boracic lint soaked in the bichloride solution, because such lint possesses already an antiseptic, impregnating thoroughly its tissue; but ordinary lint wrung out of the solution would also answer the purpose well.

CONCLUSION.

I may now, in conclusion, formulate the advantages of this method of treatment.

1. The parts sterilised by the burn are kept sterile.
2. No active inflammation takes place, and hence no further death of tissue ensues.
3. No copious purulent discharge.
4. Infrequency of removal of dressings.
5. Little or no pain connected with such removal.
6. No offensive odour.
7. The necrosed tissue is rapidly thrown off by the growth of healthy granulations.
8. The resulting cicatrix is the least possible, from the fact that parts are preserved which might otherwise, from septic influences, have died.
9. Lastly, the process of healing being unimpeded by any local disturbances, there is an absence of any constitutional symptoms.

INFANTILE DEFORMITIES, AND MATERNAL IMPRESSIONS AND EMOTIONS.

*Being the Presidential Address in the Obstetrical Society of Glasgow,
25th November, 1891.*

By GEORGE HALKET, M.D.

GENTLEMEN,—There are few things more painful to a mother than to give birth to a child that is in any way deformed. How often do we hear a mother say that it matters little to her whether her child is a boy or a girl, or what it is like, or whom it is like, so long as it is "like the world."

We are apt to look upon these words as an idle tale, and worthy of little attention; but I firmly believe that they bear more real significance than they generally get credit for.

A deformed child is a lifelong sorrow to its mother, and an object of pity as long as it lives, yet we not unfrequently

see children come into this world deformed as to their face, their limbs, or other parts of their body, and bearing these deformities along with them from their cradle to their grave.

The deformities of which I am going to speak are those which have occurred in children at whose birth I attended, with whose family history I was acquainted, and, in the case of those who survived, whose subsequent career I have been able to follow.

I will take first those deformities affecting the head and face, then those affecting the upper extremities, then the lower extremities, and then those affecting the trunk.

The case of greatest interest affecting the face and head was the child of a woman residing in Stobcross Street. It was her second child, the first being as healthy and well formed a boy as one could wish to see, and who is still alive. The child of which I am speaking was also a boy. Its nose was only partially developed, being very small, and had only one nostril. It had the appearance as if only half the nose were there. The right eye was situated considerably further back on the head, and at a much lower level than the left eye. The child could not close that eye, and sleeping or waking, the right eye was always wide open. On the right side of the forehead there was a small growth half an inch in length, tipped with bone, and which looked like a small horn. This I took to be the undeveloped part of the nose. The child was otherwise strong and healthy, and lived till it was fifteen months old, when it died of acute bronchitis.

There were five cases of harelip. Two of these were simple and uncomplicated, and situated on the left side of the median line. These were successfully operated upon. Two cases, one on the right side and one on the left, were complicated with cleft palate. One died in infancy from bronchitis, the other was operated upon, and is still alive. The fifth case was a double harelip, with cleft palate, and died in the Western Infirmary, whither it was taken for operation.

I had three cases of children with hydrocephalic heads, all dead born. One of these required perforation and the application of the forceps; another, born at the end of the eighth month, was delivered with the aid of the forceps. This child had no neck, the head being fixed directly on the shoulders. The third case was a breech presentation, and was delivered with great difficulty. The bones of the head in this case were not united, otherwise craniotomy would have required to have been performed.

I had one case of complete ossification of the bones of the

head. The mother of this child had had a large family, and all her confinements were normal. In the present case, after the cervix was completely dilated, the head remained for a considerable time above the brim of the pelvis. To aid delivery, I applied the forceps, but, do what I could, I made no impression on the position of the head. The case being in Crosshill, I got the assistance of Dr. Nairne, but with no better result. We then decided to turn, and again the head gave trouble. It was only after efforts which exhausted us both that the child was brought into the world, with a head as round as a ball, and as hard as a stone.

Coming now to the deformities affecting the upper extremities, there was one case where the fore-arms were only partially developed—that is, they were short and thin as compared with the upper arms, and they were firmly fixed at right angles to the upper arms, to which they were attached by a thin web-like membrane of skin and fibrous tissue. On each hand only the thumb and forefinger were present. This child was dead-born, but the mother believed it was alive at the beginning of labour.

The next case was a child born at the end of the eighth month of pregnancy. It had both hands firmly fixed at right angles to the fore-arms, and resembled the condition which is found in talipes equino-varus in the foot.

There was one child born in which the index and middle fingers of the left hand were not developed, and two cases where the child was born with a sixth finger on the left hand. As the attachments of these sixth fingers were only slight, I separated them and bandaged the hands.

In the lower extremities, the only deformity I had was that of club-foot, and of this I had three cases—all of the talipes equino-varus type. In two of these cases only one foot was implicated; in the third, both feet.

All were successfully operated upon.

I had one case—a breach presentation—where one of the feet was very much twisted by intra-uterine pressure, and had all the appearance of a bad club-foot; but manipulation and bandaging eventually restored it to its proper shape.

On the trunk I had three cases of spina bifida. One was in the dorsal region, and had no tumour. One was in the lumbar region, and the third was over the upper part of the sacrum. The first two cases died within a few days of their birth from convulsions. The third case did well, the tumour taking on a thick covering of skin. This child, a boy, is still alive, and about 8 years of age. He was 3 years old before he could

walk, still walks with a stooping and shuffling gait, and is not intellectually the equal of his brothers and sisters.

These, gentlemen, are the deformities and malformations worthy of note, which have occurred in my midwifery practice, and the question now arises, Can their appearance in any way be explained?

The belief, that maternal impressions and emotions affect the development of the foetus, has existed from the earliest periods, and up to the beginning of the eighteenth century was generally accepted by the medical profession. From that date up till now, and more especially within the last fifty years, writer after writer, and amongst them men of distinction, both in this country and America, have expressed their disbelief in this theory, and have written many articles to controvert it.

They hold that maternal impressions or emotions are exceedingly common amongst pregnant women, and that deformities are very rare.

That deformities sometimes occur when there was no history of maternal impression.

That when deformities follow well marked maternal impressions, they are due to coincidences, and are not cause and effect.

That there is no nerve tissue in the umbilical cord, and that mental emotion cannot, in this way, be carried from the mother to the child. And, further, that as the action of maternal impressions and emotions cannot be explained pathologically, they can have no effect whatever on the foetus in utero.

But, gentlemen, "There are more things in heaven and earth than are dreamt of in our philosophy;" and case after case has been put on record, substantiated and confirmed by medical men whose names are sufficient guarantee, that mental impressions and emotions do sometimes affect the development of the foetus.

One thing is certain, that knowing the sympathy that exists between the brain and the womb, if there is one time more than another when a woman should be treated with gentleness and care, when her surroundings should be pure and free from anything that is repulsive, it is when she is pregnant.

If, on the other hand, we see her exposed to everything that is bad—the fury of a drunken husband, and the annoyance of quarrelling neighbours, hearing obscene language, and seeing foul sights; if, in addition to that, we find her addicted to drunkenness, and the other evils that spring from that, there is little wonder that the course of nature

in the development of the foetus should sometimes be interfered with.

Now, what do we find in the cases that I have laid before you?

In the first case, where the nose was only partially developed, and where the right eye was displaced, the father of the child was at that time a confirmed drunkard, and frequently assaulted his wife. There was a history of repeated kicks and blows over the abdomen during the early months of pregnancy, not discovered only after the birth of the child, but of which I was made aware at the time, and measures had to be taken on more occasions than one to prevent abortion. In this case, I believe the deformities were the result of external violence.

Taking next the deformities which were due to arrest of development—harelip, cleft palate, and spina bifida—there was not, so far as I was made aware, in any of them, any history of particular maternal impressions, but there were in every case circumstances which, I believe, tended to cause these deformities.

In the two worst cases of harelip and cleft palate, the mothers were given to frequent and long continued fits of intemperance; and from this cause, aggravated by violent emotions, to which every intemperate person is exposed, the blood became vitiated and so changed as to interfere with the proper nutrition and development of the child.

In two other cases the mother suffered bereavement about the time of conception, and had long periods of grief and mental depression. Another was deserted by her husband and left in poverty and suspense, and the others suffered in many ways from ill treatment and neglect.

Now, bearing in mind the absolute dependence of the foetus on the blood of the mother, it is not difficult to imagine how mental emotion, long continued, should so affect the quality of the maternal blood as to cause it to act injuriously on the child.

In the two cases where the hands and arms were deformed or only partially developed, I did not seek for any history of maternal impression. I thought it better, in each case, that the mother should be kept in ignorance of the deformity of her dead child.

But there was one case that would not hide, and that was where the child was born alive with the index and middle fingers wanting from one of its hands. The mother was a young woman who knew nothing about maternal impressions,

but when she was made aware of the state of her child's hand, she stated without hesitation that she had to work for some months after her marriage, that the foreman under whom she worked had lost two fingers through an accident, that when she saw his hand for the first time she had a "grueing," or shivering, and that every time she saw him she could not keep from thinking of his deformed hand.

A few years ago an interesting correspondence was carried on in the *British Medical Journal* on the subject of Maternal Impressions, and medical men in different parts of the country gave an account of cases which had come under their own observation. One medical man had a patient who, in the early months of her pregnancy, wished to have her ears repierced, that she might wear her earrings again. When she got this done she wished she hadn't, and the matter preyed heavily on her mind. When she was confined, it was found that the child's ears were likewise pierced, and a thread was passed through one of them.

Another related how a patient of his, in her first pregnancy, was served daily with milk by a boy who had lost his middle finger, and that as he handed her the milk she always observed the absence of that finger. When her child was born, the middle finger of one of its hands was awanting.

A third medical man described how a workman was brought into his surgery with one of his hands cut right off by some machinery. He narrated this incident to a lady friend of his, who was, at that time, in the early months of pregnancy, on whose mind it made a marked impression, and who could not keep from detailing the incident to others. Her child was born with only one hand.

Another doctor had a patient who, about the time of her conception, had lost a near and dear relative. Her grief was inconsolable, and she spent the early months of her pregnancy in weeping and covering her eyes with her handkerchief. When her child was born it was born blind.

And this brings me to speak of a case that occurred in my own practice, now a good many years ago, but the facts of the case are as firmly impressed on my mind as if they had occurred only yesterday. It was the saddest case I ever had, for though the confinement was as simple a one as I ever attended, the child was born dead, and the mother died within a few hours afterwards, and that from no apparent cause.

On the 4th October, 1884, a lady residing in the western district of Glasgow, called upon me and asked me to attend her in her confinement, which she expected about the middle

of December. It was to be her third confinement. Both previous confinements had been normal, and I had attended her in her second confinement, when she made a good recovery. I remember telling her that I did not think she looked quite as well as she did when I saw her last, and she replied that since the death of her mother, who had resided with her, she had felt dull and lonely, and was often in low spirits. Otherwise, she said, she was in good health.

I may here mention that though I had been frequently in her house visiting her mother and her children, I had never been asked to prescribe for herself, and none of her friends ever suspected her to be suffering from any bodily trouble.

I did not see her again till the early morning of 9th December, when I was called to her confinement. I found her sitting at the kitchen fire, the very image of despair. On my advice she went to bed, and on examination I found the labour well advanced, the head presenting normally, and the membranes unruptured. The pains were strong and regular, and with every pain she cried out in a tone which resembled that of grief rather than of bodily suffering, "Oh, my poor mother, my poor mother." I told her that she was not bearing up so well as she did at her previous confinement, and encouraged her as well as I could. She paid no attention to what I said, but with every pain kept crying, "Oh, my poor mother, my poor mother." Shortly afterwards the membranes ruptured, and in a few minutes the child came into the world, but the first view I got of it convinced me that it was dead. There was no discolouration of any part of its body, but it had that soft, white appearance, which indicated the absence of life. I did attempt resuscitation, and while doing so asked her when she found the movements of the child last, and she answered that she had felt no "life" since her mother died. Now, her mother had been dead nearly a year.

After removing the placenta and bandaging her, I waited a short time to see that the uterus was contracting properly, and then left her, to all appearances well. In about three hours afterwards I was called hurriedly to come back and see her, and was just in time to see her breathe her last. There had been no undue hæmorrhage, internal or external; and the only information I could get was that she had attempted to sit up, and had fallen back in a fainting fit.

I was visiting in the neighbourhood the following day, and reference was made to what had happened. I stated that I had difficulty in accounting for the cause of death, but the lady to whom I was speaking said she believed the cause of

death was a broken heart. And then she told me, how in the summer time, she had frequently met the deceased lady at the coast, and how her whole talk on every occasion was about her dead mother.

Gentlemen, I have laid before you, for your opinion, every fact of this sad case with which I am acquainted, but whatever the scientific or pathological explanation may be, I am firmly convinced, in my own mind, that the death of this child, and the death of its mother, are in some way connected with maternal emotions.

DISCUSSION ON
"TUBERCULOSIS AS AN INFECTIOUS DISEASE,"
IN THE
MEDICO-CHIRURGICAL SOCIETY, 18TH DECEMBER, 1891.

The President, DR. JOSEPH COATS, in the Chair.

BEFORE calling upon the first speaker, *Dr. Coats* explained that, at the close of his Presidential Address, he had referred to Tuberculosis as an Infectious Disease, and had suggested that as a fit subject for discussion. He had not expected that any Discussion which might be arranged for should take place so early in the session, but at the close of the Discussion in November on other matters in his Address, *Dr. Hugh Thomson* gave notice of the motion now standing in his name, and that had accelerated matters, as the Council recognised that *Dr. Thomson's* motion and the subject of tuberculosis as an infectious disease ought to be considered together. *Dr. Coats* then called upon *Dr. Lindsay Steven*, who had been asked by the Council to open the Discussion.

THE PATHOLOGICAL AND CLINICAL ASPECTS OF
TUBERCULOSIS AS AN INFECTIOUS DISEASE.

BY JOHN LINDSAY STEVEN, M.D.

I wish to return my hearty thanks to the Council of the Glasgow Medico-Chirurgical Society for the high honour they have done me in asking me to open this most important discussion, and to express my regret that the shortness of time at my disposal has not permitted of my preparing a more elaborate and exhaustive introductory address.

DEFINITION OF AN INFECTIOUS DISEASE.

In the first place, it is necessary to state what we are to understand by an infectious disease, and for this purpose I could not do better than quote a short paragraph from the recent edition of Fagge's *Practice of Medicine*:—"From an early period, it has been observed that certain diseases are contagious or 'catching,' by direct contact with the sick person, or by means of clothing or buildings, which transmit the *materies morbi*. When actual contact took place, the disease was called *contagious*; when it was transmissible by the air, it was given the wider name of *infectious*, and the vehicles of transmission were called *fomites*." In order to be regarded as an infectious disease, the malady must satisfy the following conditions:—(1) the disease must present distinct and constant features, both clinical and anatomical, by which it can be identified; (2) the virus itself must be distinguishable from all others, both by the characters it presents in the body and in pure cultivations; (3) the virus must be present in the blood or tissues of the individual affected by the disease, and it must not occur in the body apart from the presence of the disease; and (4) pure cultivations of the virus must always produce the disease when inoculated.

The problem before us to-night is, How far do the phenomena of tuberculosis satisfy the requirements of this account of an infectious disease? I believe that tuberculosis satisfies each of the requirements stated above, and I shall ask you to consider my reasons for this belief, both from the pathological and the clinical point of view.

PATHOLOGICAL ASPECT.

Among pathologists the idea that tuberculosis is an infectious disease is no new one; and it was placed on a scientific basis, particularly by Cohnheim, years before the discovery of Koch's bacillus. The pathological anatomy of tubercular affections is strikingly suggestive of an infective lesion. The mode in which the disease develops locally, and extends from one part to another, has long led pathologists to place tuberculosis among such affections as leprosy, syphilis, glanders, &c.; and this was admitted even by such writers as Virchow, Hamilton, and others, who regarded the infective material as not being necessarily specific in its nature. In 1865 Villemin announced that he was able to produce tuberculosis in animals

by inoculation of tuberculous material, and stated his belief in the specific nature of the virus. His experiments were repeated by many investigators, a number of whom, however, refused to accept the view of specificity. Klebs from the first supported Villemin's contention; but among those who could not in the first instance accept the specific theory, was Cohnheim, because he found that indifferent materials, such as cork pellets, fragments of paper, and pieces of thread, produced tuberculosis when introduced into the bodies of guinea-pigs. It was then suggested that possibly those indifferent materials might have been contaminated with the tubercular virus. Cohnheim repeated his experiments, observing special precautions to exclude this source of error, with the result that he became absolutely convinced of the specific nature of the virus, and almost prophesied the future discovery of a tubercle bacillus.

On the 24th March, 1882, Koch announced his discovery of the tubercle bacillus. His experiments were so conclusive, so exhaustive, and so well guarded at every point by control experiments, that the relationship between the organism and the disease, as cause and effect, was placed on a secure foundation from the first. It is needless to refer to Koch's work in detail. It has been tested by hundreds of competent observers in all parts of the world, and in the decade that has almost elapsed since the announcement of his discovery, not one of his original propositions has been upset.

From the pathological point of view, it is now everywhere admitted that the phenomena of tuberculosis satisfy all the requirements necessary for its admission into the group of infectious diseases.

CLINICAL ASPECT: (1) EXPERIMENTAL EVIDENCE.

When we attempt to deal with the question from the clinical standpoint, however, very considerable difficulties are met with. I think there are many who, while quite prepared to admit everything I have said with regard to the purely pathological and bacteriological phenomena of the disease, cannot follow the argument to its logical conclusion as regards the clinical aspects of tuberculosis. I have myself experienced this difficulty to a very considerable degree. How far this is due to early training and to a use-and-wont habit of looking at the phenomena of phthisis pulmonalis, I would not like to say. It is my duty simply to state one or two arguments in favour of tuberculosis as

an infectious disease from the clinical standpoint. Here the evidence to be considered is of two kinds—(1) experimental; (2) purely clinical.

When it was definitely settled that tuberculosis was due to a micro-organism, a very natural question was—Are the bacilli to be found in the breath of consumptives, and may the virus be disseminated into the air in this manner? This led to the further question as to whether the bacilli were suspended freely in the air or deposited in dust. Experiments of various kinds, instituted in order to obtain a definite answer to this query, were undertaken by C. Theodore Williams, Ransome, G. A. Heron, von Wehde, Baumgarten, Cornet, and others. Sterilised plates, moistened with glycerine, were hung in the ventilating shafts of consumptive wards; phthisical patients were made to breathe into moist chambers; and flat dishes containing culture media were placed near the beds of consumptive patients. After the lapse of certain periods of time the bacilli were sought for, or the contaminated glycerine was injected into the bodies of guinea-pigs. Dr. Williams found a few bacilli in the glycerine plates hung in the ventilating shafts of the Brompton Hospital. Cornet, of Berlin, however, takes the chief place amongst those who have experimented in this manner, and it is impossible to read the account of his investigations without being convinced that they afford very strong proof of the infectious nature of phthisis. He experimented by washing the dust from the walls of consumptive wards, and from the framework of the beds and the floors of the rooms, in which phthisical patients had been lying, with a small sterilised sponge revolving between the points of a forceps. He then placed the sponge in sterile nutrient broth, where it was allowed to remain sufficiently long to permit of a moderately free growth of any bacilli that might be present. Some of the culture fluid was then injected into animals. If the inoculated animal had not already died, it was killed after 40 or 50 days, and the *post-mortem* appearances were carefully noted. These experiments were controlled by a similar series in which the dust from places unlikely to be contaminated by tubercle was employed. It is unnecessary to refer to his results in detail; it is sufficient to say that the dust from infected localities produced tuberculosis in a large number of the animals injected; whereas, it was the exception to get tuberculosis from dust obtained in non-infected areas. Those who wish to follow the account of these most important researches in greater detail, will find a full record of them

in Cornet's book, entitled *Die Verbreitung der Tuberkelbacillen Ausserhalb des Körpers*, published in Leipzig, 1890. In this work, also, many other phenomena, of great interest and importance, as regards the infectious nature of tuberculosis, are dealt with.

(2) PURELY CLINICAL EVIDENCE.

We must now face the question from the purely clinical aspect. What evidence have we to support the view that tuberculosis is clinically to be regarded as an infectious disease? In the first place, it is to be noted that not unfrequently cases of local tuberculosis have been observed to arise from accidental inoculation through a wound of the skin. In Chapter V of Dr. G. A. Heron's work, entitled *Evidences of the Communicability of Consumption*, a number of recent and quite undoubted cases are recorded. In the second place, we have evidence, ever increasing, of ordinary clinical infection. It is only necessary that I should refer you to a few of the collections of such cases. A very important series bearing upon the infectious character of phthisis pulmonalis is contained in "A Report on the Communicability of Phthisis," published in the first volume of the *Collective Investigation Record* of the British Medical Association, 1883, page 26. It is not my intention to discuss this report in detail, as it is open to all medical men who care to study it. It is sufficient to state that, out of 1,078 members of the Association who returned answers to the questions issued on the subject, 261 believed that they had seen cases of phthisis which had originated in communication from one person to another, and 39 had seen cases which made them doubtful whether phthisis might *not* be so communicated. A hundred and fifty-eight of these cases refer exclusively to infection as observed between husband and wife, and some of these cases are of a most convincing and conclusive kind. For a further series of cases of infection, I would again refer you to Dr. G. A. Heron's book, in the appendix to which a list of 77 cases, prepared under the direction of Koch, is published with full bibliographical references. It is almost impossible to read this synopsis of cases without at least admitting the possibility of infection. In the same volume, at Chapter IX, is published the statistical inquiry made by the German Home Office into the prevalence of tubercle in the Catholic Nursing Orders of Prussia—an inquiry undertaken at the suggestion of Cornet. In these Orders, "the members are bound, by a vow, to remain

for life in their respective Orders. Neither when ill, nor for any other reason, are they permitted to leave convent life." Thirty-eight convents were chosen for statistical purposes, and in all of them the great excess of deaths was found to be due to tuberculosis. "The death-rate of the general public from that cause is from one-seventh to one-fifth of all deaths. Instead of that mortality, we find amongst these nursing communities that nearly two-thirds of the deaths, or 62·88 per cent, are due to tubercle alone. In nearly one-half of the convents it rises even higher than two-thirds. In some of them it accounts for three-fourths of the mortality. In two small 'mother houses' tubercle was the sole cause of death." In some convents the death-rate from tubercle varied from 60 per cent to 70 per cent, in others from 40 per cent to 50 per cent. Cornet explains this difference by the fact that some communities nursed chiefly surgical, others chiefly medical cases. It should also be noted that each applicant for admission to a convent had to be medically certified as of sound constitution. Here, then, is a set of conditions in which it may be admitted that ordinary infection had a great deal to do with the high death-rate from tubercle.

PERSONAL OBSERVATIONS AND STATISTICS.

I have no very extended observations of my own to offer on the clinical infection of phthisis; but, between the months of May, 1886, and January, 1889, I took short clinical histories of most of the cases of consumption coming before me in the Royal Infirmary Dispensary. These clinical histories numbered 120; and, after carefully excluding all cases that seemed to me doubtful, I was able to tabulate 113 as pretty clearly cases of phthisis pulmonalis. The cases were not recorded with the special object of investigating the infectious nature of the disease; nevertheless, I thought it right to consult the table which I had constructed in view of the present discussion. Among the 113 cases, I find 3 in which the disease was stated to have been probably acquired by infection. Had infection been specially inquired into, I have no doubt the number would have been larger. In the 3 cases referred to, the probability of infection was so apparent as to attract special attention at the time. Two of the cases were children; the third was an adult:—

1. A. B., a girl aged 11, was in the habit of sleeping with a paternal uncle who died of consumption. She presented

well marked signs of phthisis; her father and mother were healthy.

2. L. M., a girl aged 6, showed distinct signs of phthisis. She slept constantly with her father, who for 12 years had been phthisical, and all of whose brothers and sisters had died of the disease. The mother came specially to inquire if the child should continue to sleep with her father.

3. W. W., a wood turner, aged 25, had well marked phthisis of 15 months' duration. His wife died of phthisis after being ill for a year or two, and he attributed his illness, which commenced 3 months after his wife's death, to infection from her. His father died of asthma; his mother was always healthy.

In private practice, I have observed at least one case of infection from the wife to the husband. I do not wish to urge the cases for more than they are worth, but it should at least be remembered that there was no special inquiry with reference to infection, when the notes were being taken.

HEREDITY.

One of the chief obstacles to our accepting the doctrine of infection is the very prevalent opinion that tuberculosis, and particularly phthisis pulmonalis, is a characteristically hereditary disease. It is here that the pathological and clinical doctrines are apt to clash. So strong is the conviction of the hereditary nature of the disease, that in many quarters heredity is practically regarded as one of the exciting causes of tuberculosis. Yet, long ago Cohnheim urged that heredity had little to do with the causation of tubercle. In his *Lectures* he says:—"In short, where the opportunities for acquiring tuberculosis are so manifold, we must be furnished with proofs of at least a different character to those already brought forward before we can accept as demonstrated the existence of an hereditary predisposition to the disease" (*Syd. Soc. Trans.*) The whole tendency of recent bacteriological research has been to prove the correctness of Cohnheim's opinion. Is it not possible that the notion of the extremely hereditary nature of tuberculosis has arisen from an erroneous method of interpreting the phenomena of the disease? It does not necessarily follow that tuberculosis is hereditary simply because many members of a family die of it. In fact, as was pointed out in the *Collective Investigation Record*, vol. i, 1883, it is rather against the idea of heredity to find that a large number of the members of one family die of it. To me

it seems much easier, under these circumstances, to explain the fatality on the ground of infection. Brothers and sisters, as a rule, are so closely and intimately associated that infection, if it is operative at all, must have the freest scope for doing its deadly work. From this point of view I again consulted my tables of phthisis pulmonalis to see what light they threw upon the question, and I would ask you to bear in mind that the tables were constructed at a time when I had the fullest belief in the hereditary nature of phthisis pulmonalis as ordinarily taught. I find that in the tables of 113 cases the family history had been carefully inquired into and noted in 75 cases, and on subjecting them to careful scrutiny, I arrived at the following results.

As regards family history, I classed the 75 cases under the following headings, and appended the number of cases falling under each head :—

TABLE I.

ANALYSIS OF FAMILY HISTORIES IN SEVENTY-FIVE CONSECUTIVE CASES
OF PHTHISIS PULMONALIS.

I. Good family history,	19 cases.
II. Negative family history as regards tubercle,	9 „
III. Bad family history from other causes than tubercle,	3 „
IV. Consumption or other form of tubercle in family history,	39 „
V. Family history noted as indefinite or unknown,	5 „
Total,	75 „

Excluding the 5 cases in which the family history was unknown, we have, in 70 cases, 39 with a family history of tubercle, not necessarily phthisis, and 31 in which there was no family history of tubercle. The majority in favour of heredity is by no means very great, and the result rather surprised me. It is to be remembered also that I regarded cases of death from bronchitis or pneumonia in the parents as deaths from consumption.

I subjected the 39 cases of tubercular family history to a further scrutiny, and classed them as follows :—

TABLE II.

ANALYSIS OF THIRTY-NINE TUBERCULAR FAMILY HISTORIES.

I. Tubercle in one or both parents,	9 cases.
II. Tubercle in one or both parents and in children,	12 „
III. Tubercle in the children alone,	14 „
IV. Tubercle in parents and in uncles or aunts,	1 „
V. Tubercle in uncles or aunts alone,	2 „
VI. Tubercle in grandparents alone,	1 „
Total,	39 „

Here, then, we see that in the 39 cases of tubercular family history there were 14 cases in which the tubercular element was confined to the brothers and sisters of the patient, and was not found in the parents. If we subtract these 14 cases, it leaves us with only 25 cases in which a clear clinical history of heredity could be obtained, in a total of 70 cases whose family history was carefully ascertained. I am quite aware of the circumstance that hospital patients are likely to be inaccurate in the matter of family history; but against this source of error I would place the well known tendency of patients higher in the social scale to conceal by every means in their power the presence of a tubercular taint. I do not think this tendency counts for nearly so much in hospital patients.

These statistics, gathered from my own observation and experience, constitute the only original matter that I can contribute to this very important discussion. They have turned out quite differently to what I had expected, and they by no means give me that certain evidence with regard to the hereditary nature of phthisis pulmonalis that I had expected to find. Indeed, so far as it goes, the evidence they contain may be regarded as pointing the other way.

This, then, concludes what I have to say with regard to the pathological and clinical aspects of tuberculosis as an infectious disease. In thinking of infection as applied to tubercle, it is to be remembered that infection can only occur under circumstances of the closest personal intimacy, or where the individual has his surroundings impregnated with the virus in a desiccated state, and that the infectious material produces its deadly results, as a rule, with exceeding slowness.

MODE OF INFECTION.

I have no time to do more than merely mention a few points that I think might profitably be considered in the course of the discussion. With regard to the mode of infection, there seems to be mainly two ways in which this takes place (1) through the air; (2) by means of contaminated food. In order for infection to occur through the air, it is necessary that the virus should be desiccated and deposited in the dust of rooms which have been occupied by phthisical patients. While sputum or other tubercular discharge is moist the virus cannot be discharged into the air. Milk and butcher-meat are the two articles of diet most likely to be contaminated by the tubercular virus; and many observations and opinions, both legal and medical, have been already published on this

important matter. It is important to remember that the bacilli may be present in milk even although the udder of the cow is not in the least affected; and I am convinced that the great prevalence of peritoneal tuberculosis in children is due to the use of tubercular milk. With regard to the flesh of tubercular animals, I hold that under no circumstances can it be regarded as safe to use it for food. However localised the tubercular disease may *seem* to be, we know, from frequent observation, that at any moment a local tuberculosis may become generalised.

PREVENTIVE MEASURES.

An important part of this discussion will be concerned with the question as to how we are to deal with tuberculosis regarded as a highly infectious malady. In my opinion, any preventive measures which may ultimately be adopted must proceed on two general principles—(1) that of isolation; (2) that of preventing the dissemination of the virus. It should be discussed whether this could best be accomplished by a hospital founded and kept up by public charity; or by a hospital supported by the rates and under the supervision of the Local Authority, who would also take other necessary sanitary precautions to prevent the spread of the disease. I think the latter would be the only efficient plan, although I am well aware of the magnitude of the proposal to place tubercle on the list of infectious diseases, and of the opposition which is sure to be aroused in many quarters.

Dr. Steven was followed by *Dr. Hugh Thomson*, who moved—"That a deputation of this Society be appointed to wait upon the Lord Provost of Glasgow, to ask him to call a public meeting to consider the question of erecting a hospital for the treatment of tubercular diseases for the city of Glasgow."

Dr. Thomson said that it was rather a bold thing for him to introduce such a subject, as he had not had the practical experience that many of those present had had in connection with hospitals and with teaching; but, as he had for a long time been impressed with the necessity of some different method of treating the disease than at present obtained, he had been paying a great deal of attention to the matter. He felt he was much relieved in his task that evening by the able address that they had listened to from Dr. Steven.

Dr. Thomson then continued :—In a letter which I wrote to the *Glasgow Herald* in 1888, urging the getting of a special hospital for consumptives, I showed that tuberculosis was credited in the Registrar's Report for 1887 as causing in Glasgow 1,845 deaths—viz., from *tabes mesenterica*, 191; tubercular meningitis, 175; phthisis pulmonalis, 1,335; other forms of tubercular disease, 144; being nearly a sixth of the deaths from all causes. In 1888 the proportion was much the same, the total being 1,785; and in 1890 the total was 1,918; being exactly one-sixth of the deaths from all causes.

In a lecture by Arthur Ransome, M.D., F.R.S., published in the *Lancet* of 8th March, 1890, he states that, "tubercle at the present day carries off annually nearly 70,000 in the form of phthisis; at ages between 15 and 45, the most useful stages of human existence, it kills more than one-third of the people who die; and nearly the half of those between 15 and 35." But it would appear, great as these numbers are, they fall far short of the total cases of tubercular disease in the community, as shown, Mr. President, by your own able and interesting address. That there is no exaggeration in your estimate of the number of cases in which tubercle is found in a healed or latent condition, is also shown by a statement which I recently observed had been made at the Academy of Medicine in Paris, by M. Brouardel, whose duties require him to make *post-mortem* examinations in cases of violent death, that the figure of tubercular disease found in such cases amounted to 60 per cent of persons over 30 years of age.*

Since the discovery by Koch in 1882 of the bacillus as the pathogenic agent in phthisis, much light has been thrown upon the etiology of the disease. It is by the sputa which contain the bacillus that the disease is communicated to the healthy. It is chiefly through the air breathed that the bacillus finds entrance into the system, but in order to that event, the sputa must be dried and converted into dust. We see in this circumstance the reason why the disease does not spread in well appointed hospitals, where every patient with chest affection is furnished with a spittoon, and the utmost care is taken to avoid the sputa going on the floor or the bed. On the other hand, what physician who has had to treat the poor in their own homes but has had occasion to witness the frequent infection of members of the same family by one of them who has become affected with pulmonary phthisis?

* Stated by Dr. Burney Yeo at Medical Society of London, 9th November, 1891.

In a paper on "Tubercular Infective Areas," read before the Epidemiological Society, Dr. Arthur Ransome stated, "As the result of an enquiry made as to the incidence of phthisis in some of the worst districts of Manchester and Salford, that the portions of districts most affected by the disease were the close courts and alleys, the shut-in or blocked-up lanes, and, above all, the houses built back to back, with no through ventilation." He especially noted the cases in which, in the space of five or six years included in the inquiry, double or treble occurrences of the disease had taken place in the same houses, which he found very numerous.

Dr. Niven of Oldham states, respecting 3,001 deaths from tuberculosis which occurred in that town during eleven years (1877-1887), that they took place in the poorest class of houses, and in 302 cases there were two or more in a house.

In a report to the Council of Public Hygiene of the Seine, M. Ollivier gives the case of a family of seven who came to occupy a house, all in perfect health, in 1888; one of them died in October, 1889, of tubercular pleurisy, and by August of the following year another had died, and three others were labouring under the disease. Thus, out of the seven two died, three others were attacked, and only two remained in health ten months after the first one died.

M. Arthaud calls attention to an epidemic of tuberculosis which has broken out at the Municipal Electrical Works. There are 35 to 40 hands employed. Among 35 workman M. Arthaud found 32 tuberculous, 4 of whom exhibited lesions of long standing; 23 had certainly contracted the illness after their entry into the factory; they exhibited symptoms characteristic of tuberculosis in early stages. M. Arthaud fixes the incubation at two months, and points out the danger of contamination resulting from frequenting for more than a month workshops, &c., where tuberculous people are congregated. *

As regards the *Treatment of Tuberculosis*, it is presumed that in the meantime Koch's treatment by injections of tuberculin has been abandoned. A great variety of other new remedies are being tried, and are stated by their authors to be very successful. MM. Donatin Labbé and Oudin have been using ozonised air. After being assured of the absolute harmlessness of inhalations of ozone, and after having utilised the properties of this agent in promoting oxydation in a great number of anæmic cases, they applied inhalations of ozonised air in the treatment of pulmonary tuberculosis. Trials have

* *British Medical Journal*, 7th November, 1891, p. 1,015.

been made on numerous patients during the last three years, some in private and some in the wards of M. Desno at La Charité. Of 38 consumptives (7 in the first stage, 23 in the second, and 8 in the third), they consider as cured, undergoing no treatment, not coughing for more than a year, 7 in the first stage and 6 in the second; as much improved, 16 patients in the second stage and 3 in the third. The 19 patients of the second category still show slight stethoscopic symptoms, but their general health is perfect, and they consider themselves cured. Finally, of the 38 consumptives on whom the new remedy has been used, 6 only have died, but they were already beyond all treatment, in a state of advanced cachexia. Thus, of the 7 in the first stage, the cures were 100 per cent; of the 23 in the second stage, they were 26 per cent; as much improved, 70 per cent; of the 8 cases in the third stage, there were 37 per cent much improved, whilst the entire deaths were under 16 per cent.

Akin to this treatment is that of Dr. Arthur Ransome—viz., by inhalations of ozonised oxygen, which, he says, so far as he knows, has only been used as yet in the Manchester Hospital, and with encouraging results. It was first tried, he says, in consequence of the well known beneficial action of pure mountain and sea air, and it was thought possible that some of this benefit might be due to the ozone contained in such air.

I may next refer to the antisepticism of pulmonary phthisis by the slow injection of creasoted oil (1 in 15) by Dr. Gimbert, of Cannes. His conclusions are as follows:—

1. In a great number of cases of tubercular phthisis of the lungs, caused by the specific bacilli, the microbes of pyæmia, septicæmia, and other infectious agents, or by their toxines, antisepticism is attainable by the slow injection of creasoted oil, as carried out according to the method which we have just described.

2. The sign of this result is the tolerance of the diseased tissues to large doses of creasote, tolerance which healthy tissues alone present.

3. The proof of it is the arrest of the local morbid evolution, the suppression of interstitial auto-infection, the return of flesh and strength.

4. Antisepticism may be attained by from 30 to 200 injections containing from 30 centigrammes to 4 grammes as a maximum of creasote, according to age and strength of the patients.

5. Antisepticism is not a cure; it is the prelude to it. It is

not real and lasting until sclerous tissue takes the place of the diseased tissues.

6. Continuance of life and nutrition being alone capable of accomplishing cicatricial formation, it follows that the injections, which have a stimulating but non-specific influence in the ultimate cure, must be long continued according to the indications furnished by the health of the patient.

7. The treatment may therefore last six months, a year, or even more.

8. The cure not being established by the suppression of the symptoms, it follows we can only consider as definitive those which have lasted from eight to ten years.

9. This pulmonary antisepticism, other things being equal, moreover, is easily attained by the creasote, provided the disease is limited and the general health good; it is easily obtained in the first stage of pulmonary tuberculosis, and in the second stage when uncomplicated; it will also be quite attainable in the second stage when more advanced but not too high fever; it will be sometimes possible, in the third stage, when the cavernous lesions are localised and surrounded by healthy, or almost healthy tissues, and when the general health is still relatively good; it becomes very powerful in certain forms of tubercular pleurisy, or of laryngitis of the same character; finally, it is quite illusory in cachexia.

The conclusions of this work are comparable to those which in 1877 they had drawn up along with Professor Bouchard.

These conclusions were generally admitted. But now, after having performed more than 3,000 injections of 1 in 15 creosoted oil, taking care not to inject more than 30 grammes per hour, they thought themselves authorised to add the following conclusion:—

The injection of creasoted oil employed according to a well-regulated plan, may, in a great number of cases, give rise to antisepticism in tuberculosis in course of evolution—that is to say, destroy, suppress the various microbes associated with tuberculosis and phthisis with their toxines, and accomplish complete or apparent cures.

We come now to the last and the greatest of the means of coping with this dreadful malady. The unanimous verdict of the profession, and it may be added, of the general public, is that pure air, rest, and suitable diet are the indispensable requisites to the amelioration and cure of the disease. That, however beneficial other remedies may be, these are essential adjuvants.

The question is, how are the poor to obtain them?—and

by poor, I mean all who are not rich enough to pay for their treatment in sanatoria either at home or abroad. The general hospitals are not suitable in many ways, and object to receive cases of pulmonary phthisis, except in the first stage, and comparatively few such apply for admittance, except when attacked by hæmoptysis or an inflammation of the lungs; so that unless special hospitals be provided, they are left to die in their own miserable homes, destitute not only of the comforts of a sick chamber, but too often of the necessities of life, there to spread the disease to other members of the family.

In the International Congress of Hygiene and Demography (1889), M. Cherenbach, of Bucharest, made a communication upon "Climatic Asylums or Stations for the Tuberculous, as the Best Means for their Rational Treatment, and the Surest Prophylactic against the Extension of this Scourge." Being convinced that the crowding in hospitals is disastrous, that the most powerful antiseptics are not fit to protect against the attacks of the bacillus of Koch, the speaker laid down the following conclusions:—

"Remove the tuberculous from our hospitals; remove them far from our cities; remove them also as far as possible from our great centres of population to the pure and salubrious air of the mountains, into a mild climate, alike temperate winter and summer; and cease not to urge upon your governments the necessity of erecting special hospitals in the glens of the mountains, permanent climatic stations or asylums for our poor consumptives, these true pariahs of modern society, and you will gain a new claim on the gratitude of the poor of your populations."

The section unanimously adopted these conclusions.*

Dr. Brown Henderson seconded *Dr. Thomson's* motion, remarking that it required no eloquence or force of language to commend it, for the poor consumptive was a person who had no refuge. The general hospitals refused such cases, and so did *Lenzie Home*, and they were often taken back to their poor homes where their disease, now proved communicable, was given to others. In *Edinburgh* and *Belfast* institutions had been founded for tubercular cases, and he thought the community in *Glasgow* were quite prepared for considering the matter, and that a deputation should be sent to the Lord Provost.

Dr. Cullen said that, on his reading over the notice of motion standing in *Dr. Thomson's* name, it had occurred to

* *Annales d'Hygiène Publique*, October, 1889.

him that the matter of tuberculosis might be tapped nearer its source, and that, instead of agitating for a hospital for tubercular cases, they should attend to the nature of the sleeping accommodation in the houses of the poor in Glasgow. He thought they could all understand the spread of tuberculosis among families when they remembered the prevalent habit of persons sleeping, many in one bed, and the very unhealthy construction and manner of use of "concealed" beds, especially when occupied by phthisical patients. He referred to the advantage that had been gained in parts of America by the building of villages in suitable country districts for tubercular patients, but he doubted whether the same advantage would result from the building of an hospital in the neighbourhood of Glasgow on account of the unfavourable climate.

He proposed, as an amendment to Dr. Thomson's motion, that public attention be called to the urgent necessity for sanitary interference with the ill-advised sleeping arrangements now in vogue.

The Chairman thought this amendment to be incompetent, and it was withdrawn.

Dr. Alex. Robertson asked that he be allowed to express the pleasure with which he had listened to Dr. Steven's comprehensive and able address in opening the discussion. He felt that he had gone over the ground of the infectiousness of tuberculosis, and had left very little to be added. Still, he would like to make a few observations in connection with that subject, and with Dr. Thomson's motion. He had thought he might revert to the discussion in the Pathological Society eleven years before, and he had read with interest the account of it, especially the account of remarks he had himself made then in view of their relation to the subsequent discovery. That discussion had taken place about a year prior to the discovery of the bacillus by Koch, and in the course of it he had remarked that in some cases the onset of tuberculosis might be explained "in persons with strongly pronounced heredity"—that is, persons whose tissues were susceptible—"from the absorption of tuberculous matter in the atmosphere, when near some phthisical person while coughing." Of course, since Koch's discovery of the bacillus, there could be hardly any doubt of the infectious nature of the disease. Such cases as Dr. Steven had mentioned, of husband and wife becoming phthisical one after the other, pointed in the same direction, and he had himself met with such cases. But all such cases are open to an element of doubt; for example, the patients have been exposed to the same bad sanitary conditions, and perhaps it might be

said that these of themselves might give rise to a condition of the lungs, from which consumptive disease might arise. But if anyone be sceptical about such cases, or about the power of bacillus, he thought that they had only to look to Koch's experiments to be convinced of the infectiousness of tuberculosis—especially to one experiment, which had not been mentioned that evening by Dr. Steven. In that experiment some tuberculous sputa had been sprayed into a compartment in which there were 8 rabbits, 10 guinea-pigs, 4 rats, and 4 mice. The spraying was continued for half an hour on each of several days. The animals were afterwards separated (so there was no crowding), and everyone was found tubercular in four weeks' time. That showed that for animals at any rate tuberculosis was an infectious disease, and he did not think that there was so much difference in the constitution of the human being that they should expect immunity on man's part if inhaling finely divided particles containing bacilli, though some of the lower animals were more susceptible than others. Dr. Steven had referred to a case in which tuberculosis had been communicated through the skin. He thought that it was clear that communication did take place through the skin, and that it was in the highest degree probable, almost certain, that by inhalation tubercular disease is transmitted from one person to another.

While admitting all that, Dr. Robertson wished to look also at the other side of the question for a little. Did they find in hospitals that it was so infectious as to raise alarm? If some of the arguments used were to be held to strictly, they should have to say—Exclude at once all such patients. But the risk in a well appointed hospital he thought to be very little. He might instance his own case. In the Town's Hospital he was daily in attendance on tubercular patients, and was being coughed at over and over again, and though he had no direct family history of tuberculosis, still there had been some in collateral branches; with all this exposure to risk he had never become infected. The Town's Hospital, too, he described as a building hemmed in by other buildings, the wards being ventilated only on one side, and giving only 800 cubic feet air space for each inmate. Not only had he not been infected himself, but he knew of no nurse who had been, or of any of his assistants, unless one who became ill some years after, and about whom he could not say whether the infection was got in the Town's Hospital or not. He had made inquiries also from an old nurse who had for a very long time been in attendance on such cases, and her experiences had corresponded with his own.

Thus, though admitting the infectiousness of tuberculosis, he considered the degree of infectiousness, even with a moderate amount of air, as very slight. In general hospitals, where the sanitary conditions were better, he thought the risk of infection was so much less. At the same time he had considered it right in his own practice to order the disinfection of the sputa, and in severe cases he had, in his wards, the patients isolated. He had thus tried to minimise the harm.

The most striking fact about the transmission of tuberculosis from one person to another mentioned by Dr. Steven was that in connection with the German nursing orders, but Dr. Robertson understood that those nurses attended to cases among the poor, and thus, when it was analysed, the argument lost much of its force. If it was argued that phthisical cases be excluded from general hospitals, then he thought, to be consistent, they must exclude all forms of tuberculosis and also many other diseases, such as pneumonia and even some cases of bronchitis and certain catarrhal conditions—indeed all diseases associated with germs.

With regard to Dr. Thomson's motion, what he had to say was that, though quite approving of a hospital for consumptives, he recognised that there was a question of ways and means in the matter, and he did not know that they were exactly in a position to take the line of action indicated in the motion. He thought that the public mind was not fully educated yet, and that in view of recent appeals to public generosity the present was not a favourable time for going to the Lord Provost with such a request. He feared that if there were a public meeting and no one promised subscriptions, it would retard rather than help matters; it would be different if they had already guarantee of a number of large subscriptions. He would suggest that it would be better for them, impressed with all the facts brought forward in regard to the infectiousness of tuberculosis, to remit it to the Council of the Society to draw up a resolution embodying their views on consumptive disease, mentioning the want of room for such cases in the general hospitals and the fact that it would be more suitable for such cases to be treated in the open air, and referring also to the infectiousness of the disease, especially in the houses of the poor. He would suggest that such a resolution be submitted to a future meeting of the Society, and then be given to the public. By such a plan the matter would be allowed to simmer.

Dr. Charles Workman began by referring to the difficulty experienced in cultivating the bacillus of tuberculosis, and in

making convincing experiments in regard to it. There was the initial difficulty in obtaining a pure cultivation, and he was not sure that anyone in Glasgow had succeeded in this, unless by importing the culture from Berlin.

Dr. Coats said that no one in Glasgow had succeeded.

Dr. Workman, continuing, explained that in Cornet's experiments, to which *Dr. Steven* had alluded, the cultivations were not necessarily pure—they were simply made to increase the number of germs present in the broth which was to be injected into the animals. The most important thing in such experiments was the necessity of making careful control experiments. *Dr. Workman* referred next to the point raised by *Dr. Robertson* in regard to transmission of the disease to hospital attendants. The statistics as regards hospital nurses and patients were unsatisfactory in this country. The German statistics were more reliable, because there the nurses were kept in connection with the Orders from year to year and during their whole lives. The nurses in the Royal Infirmary, for example, were always changing, and their life-histories could not be followed for more than two or three years on an average. His own experience of some years in the Glasgow Royal Infirmary, and previously in the Royal Hospital, Belfast, had led him to think that a large number of patients came in with a non-tubercular disease—*e.g.*, pneumonia or pleurisy—and yet they were sent out, either to the dead-house or to their homes, with tubercular disease. He believed that, because the sputa in such cases had been examined on admission over and over again for tubercle bacillus, and none were found; but it was not easy to convince others that the patients had been non-tubercular on admission, because one cannot say absolutely that a case is non-tubercular just because one does not find the tubercle bacillus. But, although he could not use this in argument with others, unless they had the same experiences, still the circumstance was convincing to himself personally. He believed that heredity had almost nothing to do with the production of the disease, and he was strengthened in this belief by the facts brought out by *Dr. Coats*—that 23 per cent of the population of this country die of tuberculosis, and that about 50 per cent suffer at some time or other from tuberculosis. Was it possible, then, that almost any of them could escape from it in their family histories? His own feelings on that point had at one time been very strong, as he was trained by *Dr. Redfern* in Belfast, who was firmly convinced that tuberculosis was not an infectious disease,

and who taught its hereditary nature. Since that time Dr. Workman had seen reason to change his views altogether. About a year ago Dr. Steven had argued with him that tuberculosis was hereditary, and had said that he had statistics that would show this. When they came to look at the statistics (those Dr. Steven had quoted that evening), they had found the opposite to be the case.

With regard to Dr. Thomson's motion, he would say, in the first place, that he had a great objection to the way, prevalent in Glasgow, of founding hospitals for special physicians and surgeons, and he thought that the public should have for such a hospital what man they chose. Hospitals for tubercular cases had in other towns done good work. In Belfast they had had one for eight or ten years.

Dr. Gairdner—How was it founded?

Dr. Workman—It was founded in great part through the generosity of a Mr. Foster Green. It was in connection with the Royal Hospital, from which they were able to draft cases to it.

Dr. Coats asked how many beds there were in this hospital for consumptives, and whether it was in the form of a hospital or of a convalescent home.

Dr. Workman replied that it was a hospital, but in grounds adjacent to the convalescent home. He mentioned also that a public meeting had been called in Belfast with a view to founding another hospital for tubercular cases.

Mr. Clark spoke regarding the surgical relations of tuberculosis, and his opening remarks were made to hinge on the question as to whether all such scrofulous lesions were tubercular. He pointed out that there were clinical difficulties in the way of accepting that identity, and that they often had patients with scrofulous glands who never developed tuberculosis in any other part of the body, and that similar experiences were met with in regard to diseases of joints. Were those cases, he asked, strictly tubercular? That could be proved only by experiments.

Different authors were quoted by Mr. Clark, showing the diversity of opinion that had obtained as to the question of the identity of scrofula and tubercle. One observer had asserted that they were not the same disease at all. Arloing (*Le Progres Médical*, 1886, No. 41) had said—"If each (*i. e.*, scrofula and tubercle) is not yet proved to be the work of a distinct virus, it is necessary to admit that the single agent, the tubercle bacillus, possesses different degrees of activity." "At any rate, one ought to recognise the fact that the material

obtained from scrofulous glands is further removed from its primitive virulence than that obtained from local tuberculosis." As regards lupus, Kaposi had denied that it had any relation to tubercle, or was in any sense tubercular. In this view he was supported by others—among them Mr. Jonathan Hutchinson. On the other hand, Rienzi (1887) had concluded—

1. That the virus of scrofula is identical with that of tubercle, and produces the same results in susceptible animals.

2. The material from scrofulous glands produces the same visceral lesions as tubercle in rabbits and guinea-pigs, especially in the lungs.

3. There is no ground for believing that it is an *attenuated* tubercle virus.

Then, as to lupus, Koch had inoculated tubercle in 7 cases, using lupus material, and had pointed out the necessity of examining a very large number of sections owing to the difficulty of finding the bacilli and the risk of their being overlooked.

In the Local Government Sanitary Reports, Lingard had recorded experiments with material from caseous glands; when this was inoculated, bacilli were found in nearly all the animals employed; and in experiments with lupus material bacilli were also found, but inoculation took about four times as long to produce general tuberculosis as when matter from caseous glands was used.

From these various experiments Mr. Clark had been drawn to the same conclusion as the President—that all scrofulous disease is tubercular. How, then, was it that they had so little spread in surgical cases, so little general tuberculosis? One reason was that, to begin with, the deposit was in an inner part like the elbow or knee. When it did come to the surface, if the patient were in hospital, the wound was dressed antiseptically, and thus the bacilli were destroyed; whereas, if the patient went home, there was usually a great deal of suppuration, and putrefaction set in, and the germs of putrefaction destroyed the growth of the tubercular bacilli.

He did not know that he had seen any tendency for surgical nurses to contract tuberculosis; he could not remember any one who had done so; and yet their surgical cases were preponderantly tubercular. He was not aware, either, that surgeons operating in tubercular cases were liable to contract the disease. He thought that, just as Dr. Robertson had minimised the dangers of phthisis as an infectious disease, so he might minimise the dangers from the surgical point of view.

He thought heredity had very little to do with tuberculosis. In taking the histories of the patients he very rarely got evidence of the disease in the preceding generation, and though they found it among other members of the same family, that might be because they were living under the same conditions, or there might be infection from one case to another through open sores.

As regards surgical disease, it was very difficult to adopt Dr. Thomson's suggestion. In the first place, it was difficult to diagnose surgical tuberculosis early, because in almost all cases there was a history of injury. Then it would be difficult to build hospitals sufficient, and he thought it would be a mistake to build a large hospital at all in town. If they could build a number of small hospitals in the country it would be different, but he did not think that things were yet ripe for such a motion as Dr. Thomson's.

Dr. Gairdner said that he had come to listen and not to speak, because, although in connection with his teaching of the subject he had given it much attention, still his own impressions in the practical directions pointed out, specially in regard to Dr. Thomson's motion, had not yet formed themselves definitely. He thought that the real question at issue was a much larger one than had been indicated in any of the remarks previously made. He went with Dr. Steven, and assented to and agreed with his views on the infectious nature of tuberculosis. He thought it was impossible to have considered the question in the light of what had come from Villemin, and also been shown by Cohnheim even before the discovery of the bacillus, and finally been proved with almost mathematical precision by Koch, and not to conclude that tubercle is an infectious disease. Nay, he was in the habit of putting it even more strongly, that tubercle was the one disease whose infectiousness was established by irrefutable evidence. That was quite certain, but was a very different thing from springing to a conclusion like that of the motion in Dr. Thomson's name. For, if they admitted that tubercle was an infectious disease, they might be called upon to go even further—to go so far as to put it down in the list of infectious diseases requiring notification. And when the notification came in, what would have to be done with it? He should like to ask Dr. J. B. Russell that question. They must consider the multitude of such notifications there would be; they must consider the many difficulties that would be met with; they must consider the reluctance of families to have a tubercular case announced. If it came to that, they

must do it, but they must not go into it "bald-headed." He very much doubted if the true logical issue of it would not be that they should isolate tuberculous cases as lepers were isolated; but that was too tremendous; he could not face it; both in regard to the apparent inhumanity of it and its enormous expense, he could not face it. Could they do anything short of that? he asked. They could have the sanitary officers coming into their houses to look after the disinfection of the sputa, and to insist on suitable sleeping arrangements. Were they prepared to do that? It would be a very delicate duty for the sanitary officer. If they went to the Lord Provost, were they prepared to go with such a proposition as that? Putting stone and lime into a hospital was not the true issue; it was merely a side issue. If they put tubercular disease into the list of infectious diseases, then the hospital question would come up, but it must be a hospital on the rates, on the same footing as Belvidere, though not necessarily at Belvidere. It must be paid for out of the rates and subjected to the general management of Dr. Russell. Were they prepared to do all that? He himself was not. He did not think they could draw out a programme in that Society that night, or indeed that year, that the authorities would look at, or that Dr. Russell would be prepared to take up, and Dr. Gairdner would not do anything without many consultations with him.

Dr. R. M. Buchanan began by expressing his sense of relief after hearing the remarks of Dr. Gairdner, who had put into eloquent language the logical conclusion to which this discussion must come—namely, that tubercular cases must be isolated, and that this isolation must be carried out to its utmost limit. That, he was glad to feel, had cleared the way for the remarks he wished to make, and these were—that tuberculosis was a disease the infectious nature of which was proved; it was a preventable disease, though not tending to cure. Thus, they must consider what was its origin, and from what the patients get the infection. He thought that it was sanitation that had to do with the question. They knew that tuberculosis was largely spread among children by milk, because cows were kept in byres that were inadequate for the purpose. They knew that people were allowed to live in houses which were simply incubators of the disease. He himself had seen, in his experience at the Children's Hospital, tubercular children coming from crowded houses with the history that one or other of the parents was the subject of tuberculosis. Now, he thought that the question was one for the

sanitary authorities—to remove the causes at work ; to insist that the cows be kept in sanitary conditions ; to insist that people should not live in dens ; and to insist on enlightening the public with regard to the dangers of the promiscuous scattering of the infection. If they took any crowded workshop into which they could not go without feeling oppressed, they were sure to find among the many workers some suffering from tuberculosis. They spat on the floor of the workshop ; the sputa dried and the dust was carried into the atmosphere, and thus the disease spread. Experiments as to inhaling of tuberculosis by animals, Dr. Buchanan held, were not reliable for argument in regard to human beings, as the animals lived nearer the ground, and were constantly running about and stirring up the dust, and thus everything was favourable for their becoming infected.

While he was thus quite favourable to the construction of a hospital for tubercular disease, to relieve the strain to which the existing hospitals were put, he felt very strongly that that would not meet the case, inasmuch as tuberculosis was occasioned by inattention to sanitary conditions. Hospitals for consumptives were good places, and did not do any harm ; but let them improve the sanitary conditions, and in some generations the improvement would be evident. Meantime, all that could be done was to remove tuberculous patients (and they were willing to be removed) from their insanitary surroundings, and thus prevent their acting as centres of infection.

Dr. Coats, without desiring to influence the meeting in regard to *Dr. Thomson's* motion, wished to express his views on the subject under discussion. He thought that in the discussion too much importance had been attached to the apparent contradiction between infection and heredity. He must say, that from what we know of infectious diseases, heredity plays an important part in them. It might be in the remembrance of some of those present (he did not think *Dr. Steven* could have remembered it) that he read a paper, some years ago, on the part which heredity played in infectious diseases. If they took almost any infectious disease, they would find what an important part was played by heredity, whether in the race or in the family. Thus, they had the fact that the negro was very insusceptible to yellow fever, but very susceptible to small-pox ; so scarlet fever, measles, &c., showed proclivities to attack special families. It was illustrated also among animals, the septicæmia of mice attacking house mice and not field mice. *Dr. Coats* thus

thought that there was no contradiction between heredity and infection, and he objected as much to those who ignored heredity as to those who ignored infection. Heredity determined the susceptibility on the part of individuals to infection.

With regard to tuberculosis, he thought that in all its forms it was due to infection, though this infection was very difficult to trace, and it was very infrequently that the communication of the disease from one person to another could be demonstrated. From that he would almost derive a consolatory feeling that if they were to take proper precautions against spread from the discharges, they should, without the more difficult process of isolation, go far in the way of staying the disease. He thought it was in that direction that the Society should take action. For ten years they had been under the demonstration that tuberculosis was an infectious disease, and no step had been taken to stay its spread. He did not think they were prepared to recommend going so far as Dr. Gairdner had suggested, but he did think they were ready to bring it seriously before the public that the disease is an infectious one. He did not think that they were prepared to recommend measures, but that it was for those in authority and for experts to do that. Still, he thought they should call the attention of the authorities to the matter. So far as Glasgow was concerned, the authorities had committed themselves by their action in regard to meat-tuberculosis, and he could not see any other conclusion but that they should go further and take other measures against the spread of the disease. Still, he did not think they could accomplish everything in one leap. By tentative measures they must educate the community, and later they would gain further measures, until, finally, tuberculosis might be stamped out just as leprosy had been.

Dr. Steven, in replying, said that he quite remembered Dr. Coats's paper on the subject of heredity in relation to infectious diseases, but could scarcely accept the views in it with regard to tuberculosis. According to Dr. Coats's own showing, 50 per cent of the population become the subjects of tuberculosis, and the probability is that the great bulk of healthy men, if in a low state of health, will take tuberculosis whether hereditarily predisposed or not, if they are exposed to the virus in a concentrated form. He admitted that some families showed a special tendency to take scarlatina or diphtheria in a fatal form, but this was a rare circumstance, compared with the circumstance that very few children pass through life

without taking the ordinary fevers of childhood, and in the great majority of these cases infection, and not heredity, was the fact to be dealt with; so it was in the case of tuberculosis. That must be the thing which they had to deal with in dealing with this great scourge of human life.

As tuberculosis was admitted to be an infectious disease, he looked upon it as cowardice if they were to shrink from the full consequences of naming it as such. He would put it at once upon the list, and have steps taken to deal with it by isolation, in the way that leprosy had been dealt with. He was willing to move accordingly.

Dr. Gairdner pointed out that that was a legal point which they could not interfere with.

Dr. Hugh Thomson referred, in reply, to *Dr. Robertson's* remark about the treatment of cases of pneumonia and of some forms of bronchitis in general hospitals being open to objection. The general hospitals received all such cases, *Dr. Thomson* said. They made no objection to them, while they did refuse cases of phthisis, as he had himself experienced. As to tubercular surgical cases, they were far more amenable to treatment, and there was not the same risk to communicate the disease. He believed that almost every case of local tuberculosis could be cured. As to village hospitals, they would require a lot of villages.

Dr. Gairdner—And you would have the villages protesting.

Dr. Thomson—Very likely.

Dr. Gairdner—And very properly.

Dr. Thomson, continuing, referred to the difficulties in the way of compulsory removal, holding that it would never be borne, particularly if the patient were a working man with a family to support.

The advantages of treatment in a special hospital would be that there suitable treatment might be given, and in a great many cases, specially in early stages, phthisis was curable. There was the further advantage of preventing the spread of the disease, for if they sent those patients to their homes, they not only died there, but they killed half-a-dozen more. In a properly appointed hospital, too, there was not the least fear of the disease being communicated to the attendants.

As to sanitary measures, they had been in operation for some time, and did some good, but they could not stop short at that; while, if they were to provide proper houses for all the working people in the country, that would be rather a large order.

Tuberculosis did not, like a zymotic disease, render the body

insusceptible to a second attack. It was, on the other hand, like syphilis, growths being formed here and there, and if not itself transmitted to the offspring, there was at least conveyed a delicacy, or diathesis, or susceptibility that very easily developed into the disease again.

In conclusion, he said that he considered it very remarkable that Glasgow, the second city of the empire, should have no such hospital for tubercular disease. It was not necessary that it be in the town. It might be at a distance, but that was a matter of detail which should be left to the public meeting.

After some further discussion as to the method of procedure, the previous question was carried against Dr. Thomson's motion, and the following motion, proposed by Dr. Gairdner, became the finding of the meeting :—

“That a memorial be presented to the Town Council of Glasgow, calling their attention to the fact that tuberculosis is now fully recognised as an infectious disease, and asking them to take the matter into their serious consideration with a view to the protection of the community from the infection.”

A committee, consisting of Professor W. T. Gairdner, Dr. Joseph Coats, Dr. Hugh Thomson, Dr. Charles Workman, Dr. J. Lindsay Steven, and Dr. Walker Downie, Secretary, was appointed to draw up and present the memorial.

ABSTRACT OF A PAPER “ON A NEW FORM OF EPIDEMIC SKIN DISEASE.” *

By THOMAS SAVILL, M.D. LOND., D.P.H. CAMB.,
Medical Superintendent of the Paddington Infirmary.

(Read before the Medical Society of London, 30th November, 1891).

A LARGE number of photographs and coloured drawings of the various phases of the disease were shown, together with charts and tables of the symptoms. Several patients also were exhibited with the eruption in various stages still on them. After narrating the history of a typical case, the author went

* The complete paper, with illustrations, will appear in the *Lancet* of 2nd January, 1892.

on to describe the epidemic as it had occurred in two adjacent buildings, the old sick wards of the Paddington Workhouse and the new Infirmary. Out of 846 patients who were either in these buildings on 1st July, or came in subsequently between that date and 31st October, 163 had been attacked by the disease (89 males and 74 females), being nearly 20 per cent. Only two cases had occurred amongst the staff—the author himself and a housemaid. All the cases bore a marked general resemblance to each other, but exhibited considerable variation in detail.

The disease may be described as a universal dermatitis, sometimes attended by the formation of vesicles, and always resulting in the desquamation or exfoliation of the epidermis; attended by a certain amount of constitutional disturbance, and running a more or less definite course of seven or eight weeks. The skin lesion commenced sometimes as a papular or papulo-erythematous rash, sometimes as raised maculæ, and in some rare cases as rings; but, however it begins, the various elements become confluent in from three to eight days, and produce a crimson irregularly indurated surface, which is continually shedding its cuticle in flakes or scales of various size, from impalpable powder to the entire cast of a hand or foot. If exudation were present, this entangled the flakes of epidermis and formed crusts. A large proportion of the cases were attended by a serous exudation from the formation of vesicles, which were easily broken. By this feature, Dr. Savill divides his cases into two groups—the “moist” type to the number of 100, and the “dry” type, of which there were 45, 18 being of a mixed type. Several independent areæ would be involved at different dates, but they all ran the same course. This condition of things lasted some weeks, several layers of cuticle being shed. By degrees the inflammation subsided, leaving the skin considerably thickened, indurated, and wrinkled. In many cases the new skin presented a raw parchment-like appearance, smooth and shiny, and sometimes cracked.

The eruption most frequently started on the upper arm or fore-arm (37 cases), but almost as frequently on the face or scalp (35 cases), 24 cases on the feet and legs, 22 cases on the hands, 13 cases on the back, 12 on the neck, and a like number on the chest or abdomen.

The eruption, in most cases, spread by contiguity to the neighbouring parts, and in quite half of the cases the whole surface of the trunk and limbs was involved. The disease began and ended very gradually. In some cases it was pre-

ceded by lassitude and loss of appetite, and not unfrequently the eruption would make a false start. Convalescence was tardy, and 38 of the patients had one or more relapses. Considerable irritation of the skin and a feeling of burning and itching were always present throughout the disease.

Of the constitutional symptoms, anorexia and prostration were the chief; the feeling of lassitude and weakness were present in all cases; they were often profound, and in some the asthenia was fatal. The temperature remained normal or even subnormal, excepting when a large extent of skin was involved, and the inflammation was at its height. The tongue was at first coated, but soon shed its epithelium. In something like a quarter of the cases, vomiting, or diarrhœa, or both, were present. The conjunctivæ were inflamed in all the severe cases, and in those where the face was involved. The other epidermal structures, hair and nails, shared in the disease in its later stages, and were shed.

In 50 per cent of the cases in which the urine was examined albumen was found, though permanent damage to the kidneys was not noted in any as a result of the disease.

The mode of termination in fatal cases was sometimes by collapse, consequent on the vomiting and diarrhœa, or more generally by the extreme weakness produced by the eruption. Some died comatose, as in uræmia. Dr. Savill connects two symptoms with a fatal issue—muscular twitching and embarrassed respiration without physical signs in the lungs.

Several of the cases were complicated with boils or carbuncles scattered about the body, and in some the skin remained pigmented for long after the eruption had subsided.

The affection has to be diagnosed, in the first place, from erysipelas, especially when it attacks parts containing loose cellular tissue. This is effected by its gradual advent, the absence of pyrexia, in some cases by the presence of vesicles, sometimes by the absence of a raised margin, and sometimes by the wide extent of the rash. Those cases which commenced as maculæ bear some resemblance to German measles, but the absence of pyrexia and the extreme desquamation are sufficient to distinguish them. The "dry" variety of cases bore a striking resemblance to Pityriasis rubra, but they differed in the fact of their being epidemic, and in children being almost exempt. Moreover, since we must conclude that Dr. Savill's cases were all one disease, and the "moist" type, which were in the majority, so widely differed from Pityriasis rubra, we must also conclude that the other cases did not belong to this disease. On the whole, the disease bears more

resemblance to acute general eczema than to any other known disease; but it differs considerably from this disease in the extent and severity of the dermal inflammation and thickening, in the profuseness of the exfoliation, and in the definiteness of its course.

The only treatment which availed was the external application of germicides and the administration of stimulants.

The author then proceeded to consider the question of etiology. Age was certainly a very important predisposing condition, for although the Infirmary contained a relatively large number of aged persons, still it was shown that if the inmates were classed according to age into decades, the percentage of those attacked in the earlier decades was considerably smaller than the percentage in the later decades. Thus—

Of those between 10 and 20,	.	.	.	6 per cent.
" " 20 " 30,	.	.	.	7 "
" " 30 " 40,	.	.	.	6 "
" " 40 " 50,	.	.	.	17 "
" " 50 " 60,	.	.	.	24 "
" " 60 " 70,	.	.	.	38 "
" " 70 " 80,	.	.	.	35 "
" " 80 " 90,	.	.	.	24 "

Males seemed more prone to take the disease than females in the proportion of 24 to 16 per cent. After discussing, and excluding food, soap, scabies, and water, as possible exciting causes, the question of epidemic influences, such as climate and season, and contagion, were referred to.

The clinical phenomena of the disease are alone almost sufficient to stamp it as contagious; its more or less definite course; the constitutional disturbance; the marked effect of germicides; the wave-like manner in which the outbreak had come and gone; and the fact that 6 out of the 11 who were the only ones out of 202 healthy persons to contract the disease, were "helpers" tending on sufferers from the disease. Nevertheless, the contagion is evidently of a feeble order, and seems to require several important predisposing conditions, especially including old age and sickness, or "hospitalism," for its development. The bacteriology and several other points connected with this strange outbreak required careful investigation, and would form the basis of a future communication.

CURRENT TOPICS.

OLD GLASGOW AND GREATER GLASGOW.

UNDER this designation a highly interesting pamphlet has been published by Dr. J. B. Russell, the Medical Officer of Health. As the record of an interesting stage in the statistical history of the city, we propose to give as full an account of the paper as our space allows of, quoting the author's words for the most part.

"The registrars of the eight principal towns of Scotland were required by the Registrar-General to deliver their enumeration books and other census documents to the town-clerks on or before Saturday, 25th April, 1891. The town-clerks were required to forward the same to the Registrar-General before the 6th May following. The opportunity afforded by this interval for a local tabulation of the census returns by the Medical Officer of Health was taken advantage of in 1871 and 1881 by permission of the Home Secretary, and again at the recent census by permission of the Secretary for Scotland. The conditions of time made the greatest expedition in the performance of the work necessary. A sufficient staff of clerks had been engaged, and arrangements made for the use of the rooms attached to the Lands Valuation Office in the City Chambers. The work was begun on 25th April, and finished on 2nd May, the total working time being sixty-four hours."

"The substance of this report is the appendix, in which the whole result of our special examination of the enumeration books is represented in tables, carefully planned, so as to make their use easy. Experts will refer to these, but not the general reader, who will more readily read anything which places before him in a continuous text the leading facts. This I propose to do dealing (1) with the city as a whole; (2) with the statistical divisions of the city; (3) with the suburbs; and (4) with 'Greater Glasgow.'

"I.—THE CITY.

"*Number of Inhabitants.*—The population of the city of Glasgow, on 5th April, 1891, was 565,710. On 4th April, 1881, it was 511,415. This is an increase of 10·62 per cent. In the decade 1871-80, it was only 4 per cent. In the decade 1861-70, it was 21·64 per cent. The number of persons per acre of the area is now 93.

*"Natural Increment and Loss by Excess of Emigration.—*If, having correctly enumerated the population of any district at a certain date, we knew the number of births, the number of deaths, the number of emigrants and of immigrants between that date and any other date, then we could ascertain the population living in the district at the latter date. As regards Glasgow, we know the number of persons who were born and who died between 4th April, 1881, and 5th April, 1891, but we do not know the number of emigrants and of immigrants. It is obvious, however, that the difference between the population, as ascertained by adding the excess of births over deaths to the population enumerated in 1881, and the population enumerated in 1891, will be the balance between the results of emigration and of immigration. Between 1st April, 1881, and 31st March, 1891, there were 196,737 births and 131,416 deaths. This gives a balance of gain of 65,321 persons, which is called the 'natural increment.' Adding this to the population enumerated in 1881, we find that the population in 1891 ought to have been 576,736. But it was only 565,710, a difference of — 11,026, which is *the loss of Glasgow in ten years by excess of emigration over immigration.* The increase by natural increment on the population of 1881 should have been 12·77 per cent, but the actual increase was found to be only 10·62 per cent, so that there was a loss by excess of emigration of 2·15 per cent.

*"Institutions and Shipping.—*9,315 persons were inmates of 'institutions' in the census meaning of the term, which only comprises such institutions in the unrestricted sense as were expected to have above 100 inmates, and had therefore a special schedule issued to them. The only other category in the population arising from the method of the census is the inmates of vessels in the harbour and canal, 746. An appended table puts this item in the last five censuses in a suggestive relationship.

"It is evident from this table that the number of persons living on board ships in the harbour has diminished, while the extent of the harbour has increased. The ratio of the shipping population to the quayage has fallen at every census, as compared with the preceding. Taking the last census, if the number of persons living on board ships had increased so as to bear the same proportion to the quayage in 1891 as it bore to the quayage in 1881, there would have been 938 persons in place of 855; and at the 1851 ratio there would have been over 3,600. There are probably two causes for this—the substitution of steam for sailing vessels and the

increase in the size of vessels. In place, therefore, of a number of small sailing-ships with their crews on board, there are large steamships, the crews of which live on shore. I believe also that, even in the case of sailing-vessels, the crews now generally sleep ashore.*

"*Sex.*—In every 100 of the population there were 49·08 males and 50·92 females. The following is the percentage of males at the last five censuses, from which it appears that it has risen steadily, so that now there are in Glasgow more men in proportion to women than there has been certainly during the last 40 years, probably over:—

1851,	.	.	.	.	.	Males,	47·09 per cent.
1861,	.	.	.	.	.	"	46·93 "
1871,	.	.	.	.	.	"	48·46 "
1881,	.	.	.	.	.	"	48·56 "
1891,	.	.	.	.	.	"	49·08 "

"*Natural Increment of Males and Females, and Comparative Loss by Excess of Emigration.*—Applying the same methods to the male and female population as we have applied to the total population, we get the data embodied in the next table—that is to say, by natural increment the male population ought in 1891 to have been 13·74 per cent more than in 1881, but actually it was only 11·79 per cent; while the female population ought to have been 11·86 per cent more, but it was actually only 9·51 per cent. There was, therefore, in the ten years a loss by excess of emigration over immigration of 1·95 per cent of the males and 2·35 per cent of the females. Whether the emigration of males was less than that of females, or the immigration of males was greater than that of females, we do not know; but from one or other of these causes it certainly came about that the increased proportion of males to females in 1891 as compared with 1881 was due to a greater excess of emigration of females over immigration than of emigration of males over immigration. The experience of Glasgow is the opposite of that of all England, as demonstrated by the English Registrar-General. In England the proportion of females in the population has increased, and this increase 'was due entirely to the excess of male emigrants.'†

"*Age.*—The next table shows the number living at certain age, distinguishing the sexes.

* Mr. Deas writes me in reference to the statistics:—"I believe your surmise is correct: none of the crew live on board steamers when in port during the night; these are simply under care of watchmen. In sailing-vessels, living on board while in port is yearly decreasing."

† Census of England and Wales—Preliminary Report, p. v.

"From this table it appears that the proportion of persons under 30, and especially of infants, in the population is less, and the proportion of persons above 30 is greater than in 1881. This is only the further development of a feature of recent censuses. The proportion of children under 1 year is lower than at any census since that age was classified apart—viz., 1841. On the other hand, the proportion of persons aged 60 years and upwards has steadily increased at every census since 1841, and is now higher than it has been for, at least, 70 years.

"*Born in Ireland.*—57,618 persons are Irish-born, or fully 10 per cent of the total population. This is a smaller proportion of natives of Ireland than has existed since their transmigration began. Both absolutely and relatively, there are fewer Irish-born persons in Glasgow now than for 40 years, as the following table shows. The proportion in 1851 is the maximum on record:—

	Irish-born.	Percentage.
1851,	60,058	18
1861,	63,574	15·8
1871,	70,410	14·4
1881,	65,185	12·7
1891,	57,618	10·2

"II.—HOUSING OF THE POPULATION.

"*Empty Houses.*—Of the houses in existence 4·4 per cent were found to be empty. This includes both unlet houses and houses temporarily unoccupied, but the great majority are the former. This is, therefore, one of the indices which point either to a prosperous flourishing city into which population is flowing, or to a depressed city unable to keep its inhabitants. In 1881 there were 10·7 per cent empty. In 1871 there were only 2 per cent. That was at the conclusion of a decade which had added 22 per cent to the population. Glasgow evidently, therefore, was fairly prosperous in 1891.

"*Inhabitants per House.*—Dividing the *whole* population by the number of inhabited houses, we find that there were 4·813 inmates per house. This is a result of no value, either statistically or sanitarily. It includes 'institutions' as houses, and the population of vessels, which are not represented by houses. After all, the sanitary importance of a house depends upon its size and cubic capacity. We get nearer to this by the information as to occupied rooms. For statistical purposes it is necessary to rectify this calculation of inhabitants per house by dropping 'Institutions' and 'Shipping,' so as to get, as nearly as possible, the result for the family dwelling. We

thus obtain the multiplier which, applied to the annual return of inhabited houses, gives the local estimates of the population in the inter-census years. The average number of persons in each house we thus find to be 4·727. In 1881 it was 4·738. We shall recur to the statistical uses of this factor.

Rooms per House.—Excluding ‘Institutions’ and ‘Shipping,’ the average number of rooms per house was 2·33. In 1881 it was 2·32.

Inhabitants per Room.—On the same basis the average number of persons per room was 2·033. In 1881 it was 2·040.

“The average Glasgow Dwelling-house in 1891 was a house of 2·33 apartments, containing 4·727 people, or 2·033 persons to each room.”

“The average Dwelling-house of Glasgow compared with that of other Scotch Towns.—The annexed table, as regards 1891, is calculated from the figures in table 10 of the Registrar-General’s Preliminary Report on the census.

“This table shows that the average dwelling-house of Glasgow is smaller, and contains more persons per room than that of any of the towns enumerated. The next is Paisley, which has a slightly larger average house with somewhat fewer people per room. At the opposite end is Edinburgh, which has the largest average house with the smallest number of people per room. Glasgow occupied exactly the same position in 1881. In her case only are the figures absolutely the same at both censuses. In Edinburgh, Dundee, Aberdeen, and Perth the tendency is towards a smaller average house with fewer inmates per room; while in Greenock, Leith, and Paisley the tendency is towards a larger average house with fewer inmates per room. In all the towns, therefore, except Glasgow, there are fewer persons per room of the occupied houses now than there were 10 years ago.

“Inhabitants grouped according to the size of their Houses.—In the following table ‘Institutions’ and ‘Shipping’ are excluded:—

	Number of Houses.	Inhabitants.	Percentage to total Houses.	Population.	Inmates per House.	Room.
1 Room, . . .	31,032	100,298	26·4	18·0	3·23	3·23
2 Rooms, . . .	53,303	263,836	45·3	47·5	4·95	2·47
3 „ . . .	19,808	109,284	16·9	19·7	5·52	1·84
4 „ . . .	7,112	40,027	6·0	7·2	5·63	1·41
5 „ and upwards,	6,296	42,204	5·4	7·6	6·70	0·88
Total, . . .	117,551	555,649	100·0	100·0	4·73	2·03

* As to rent, see under Greater Glasgow, p. 58.

"The houses occupied in the census have never been classified as to size before. In 1873 the total existing houses, occupied and unoccupied, were classified by the City Assessor at my instance; and it is interesting to observe, by comparison, the change in the character of the houses of Glasgow in the interval. In that year only 2·5 per cent of the houses were unoccupied, so that the comparison cannot be far out:—

	1 Apt.	2 Apts.	3 Apts.	4 Apts.	5 & upwards.	Total.
Houses, 1873,	35,037	45,828	14,090	5,521	6,361	106,837
Percentage,	32·8	42·9	13·2	5·2	5·9	100·

The general result is that there are fewer 1-apartment houses now than there were 18 years ago by 4,000, and the same number of houses of 5 apartments and upwards—the great mass of the increase being in houses of 2 and 3 apartments. The proportion of the population found resident in houses of each size has been ascertained at four successive censuses, and so we have the following interesting series:—

	1861.	1871.	1881.	1891.
1 Room,	27·0	30·4	24·7	18·0
2 Rooms,	40·7	41·5	44·7	47·5
3 "	14·0	13·2	16·0	19·7
4 "	7·4	5·8	6·1	7·2
5 " and upwards, .	10·9	9·1	8·3	8·6

This tells the same tale as the comparison with 1873, but in a more interesting way. The proportion of the total population living in houses of 1 room has fallen rapidly since 1871, and is now lower than it has ever been. The proportion living in houses of 5 rooms and upwards has fallen continuously since 1861. On the other hand, the proportion living in houses of 2 rooms has continuously increased since 1861, until now well nigh half of the inhabitants of Glasgow live in such houses. There has also been a progressive proportion living in 3 and 4 room houses. *In short, while the average house has become smaller, it is because of the withdrawal of the large self-contained houses to the suburbs.* The houses of the mass of the people have been rising in capacity. The average number of inmates in a 1-room house is $3\frac{1}{2}$; in a 2-room house, 5; in a 3 and 4 room house, $5\frac{1}{2}$; in the larger houses, $6\frac{3}{4}$. If we reduce these numbers to persons per room, as is done in the last column of the table,* we shall find how substantial is the advance in decency and health from 3·4 persons in a 1-room house to 1·2 persons per room in a 4-room house, and less than 1 in larger houses.

* Table, p. 49.

“III.—THE STATISTICAL DIVISIONS OF THE CITY.

“These are 24 in number, and are subdivisions, delimited in 1871, of the 10 registration districts as then existing.

“All the information one wants as to the city, as a whole, can be got from the national census report, if one chooses to wait for it. Not so with the districts. Their population, and the age, sex, and house distribution of their population can be had only by going to the entries in the enumeration books and allotting them. The process is laborious and costly, but the result is more than equivalent. It is also unique. There is no city in Great Britain which possesses such information regarding the various districts within its borders.

“*The average District Dwelling-house.*—So far as these figures give a statistical estimate of the house as a factor in the hygienic environment of the householder, we may say that the best house is that which contains the greatest number of rooms (which probably means the most room) with the fewest number of persons in them. From the data of the census of 1881, I deduced a ‘Law of Occupancy’—viz., ‘That the smaller the house the greater the number of inhabitants per room; or, in other words, the smaller the house the less the cubic space per inmate. *Vice-versa*, therefore, the larger the house the fewer the number of inhabitants per room; or, in other words, the greater the cubic space per inmate.’* The data of the census of 1891 entirely confirm this law. I therefore select the district which has the lowest average number of persons per room as having the ‘best average house,’ and the district which has the highest average number of persons per room as having the ‘worst average house.’

		Persons per House.	Rooms per House.	Persons per Room.
Best	{ Blythswood,	5·136	4·076	1·260
	{ Kelvinhaugh and Sandyford,	4·921	3·765	1·307
Worst—	Bridgegate and Wynds,	5·125	1·901	2·696
	City,	4·727	2·330	2·033

“No Glasgow person needs to be told that we have here the two sanitary and social extremes of Glasgow. Long experience teaches me to expect that in any comparative statistical enquiry into the health or general physical and moral status of the districts, ‘Blythswood’ and ‘Kelvinhaugh and Sandyford’ will appear at the top, and ‘Bridgegate and Wynds’ at the bottom. It may be said that in Bridgegate and Wynds the average house contains half the number of rooms, and each room twice the number of inmates, as compared with the

* The Vital Statistics of the City of Glasgow, Pt. II, p. 58.

average house of the other two districts. It may be added that the death-rate in the former is always double the death-rate in the latter.

“IV.—THE INHABITANTS OF THE DISTRICTS CLASSIFIED
ACCORDING TO THE SIZE OF THEIR HOUSES.

“*One-Room Houses.*—The lowest proportion is 6 per cent of the houses, containing 3·6 per cent of the population in Kelvinhaugh and Sandyford; the highest, 50 per cent of the houses, containing 33 per cent of the population in Bridgegate and Wynds. We have here again our healthiest and unhealthiest districts at the opposite extremes. The highest average of inmates per house was found in Springburn and Maryhill, 3·489 persons; the lowest in Blythswood, 2·642 persons.

“*Two-Room Houses.*—The lowest proportion is 25 per cent of the houses, containing 32 per cent of the population in Blythswood; the highest, 63 per cent of the houses containing 70 per cent of the population in Port-Dundas. In 11 of the districts, more than 50 per cent of the population live in houses of 2 rooms. The highest average number of inmates per house was found in Springburn and Maryhill, 5·346 persons; but Bridgegate and Wynds follows closely with 5·336. The lowest average number of inmates was found in Blythswood, 4·471 persons; with Kelvinhaugh and Sandyford, 4·498, close behind.

“*Three-Room Houses.*—The lowest proportion is 7 per cent of the houses, containing 10 per cent of the population in Barrowfield; the highest, 28 per cent, containing 30 per cent of the population in Kingston. The highest average number of inmates per house was found in Bridgegate and Wynds, 7·198 persons; the lowest, in Blythswood, 5·156.

“*Four-Room Houses.*—The lowest proportion is $\frac{3}{4}$ per cent of the houses, containing less than 1 per cent of the population in Barrowfield; the highest, 17 per cent, containing 18 per cent of the population in Blythswood. The highest average number of inmates per house was found in Bridgegate and Wynds, 7·536 persons; the lowest, in Woodside and Kelvinhaugh and Sandyford, 5·078 and 5·082 persons.

“*Five Rooms and upwards.*—The lowest proportions are in Port-Dundas, Barrowfield, Cowcaddens, Calton, Springburn and Maryhill, and St. Rollox, in all of which there are less than 1 per cent of the houses, containing from below 1 to slightly above 2 per cent of the population. The highest

proportion is 25 per cent, containing 31 per cent of the population in Blythswood; next to which is Kelvinhaugh and Sandyford with 20 per cent of the houses containing 23 per cent of the population. The highest average number of inmates per house was found in High Street and Closes, W., 31 persons; the lowest, in Woodside, 5·707 persons; the next being Kelvinhaugh and Sandyford with 5·924. The very high average number of inmates found in houses of five apartments and upwards in the old central districts arises from the fact that they are nearly all common lodging-houses. The averages which run from 5 to 8 persons refer to private residences.

"As an illustration of the application of these district statistics, and a suggestion of their meaning, I close this section of my report by focussing into a parallel statement all the isolated facts regarding districts 17 and 14, to which repeated reference has been made; appending thereto what may be called the practical outcome of the whole—the infantile death-rate during last decade in each.

A SOCIAL AND SANITARY CONTRAST.

		Kelvinhaugh and Sandyford.	Bridgegate and Wynda.
No. of Inhabitants,	. . . . .	30,523	5,689
In 10 years,	. . . . .	Increase. 15 per cent.	Decrease. 27 per cent.
Area,	. . . . .	626 acres.	35 acres.
Density,	. . . . .	49 persons per acre.	163 persons per acre.
Irish-born,	. . . . .	6 per cent.	23 per cent.
The House,	Rooms per house,	3·765	1·901
	Persons per room,	1·307	2·696
	Proportion of 1-room houses,	6 per cent.	50 per cent.
	Proportion of total population living in 1-room houses,	3·6 per cent.	33 per cent.
	Average No. of inmates—		
	1-room houses,	2·961 persons.	3·393 persons.
	2 " "	4·498 "	5·336 "
	3 " "	5·234 "	7·198 "
	4 " "	5·082 "	7·536 "
	5 " " and upwards,	5·824 "	22·241 "
Deaths, 10 years, 1881-90,	. . . . .	4,616	2,738
Births,	" "	8,254	2,477
Difference,	. . . . .	+ 3,638	- 261
Illegitimate births,	. . . . .	4·6 per cent.	25 per cent.
Deaths under 1 year,	. . . . .	892	570
Death-rate under 1 year, per 1,000 born,	. . . . .	108	230

"V.—GLASGOW 'LANDWARD,' WITH MARYHILL, POSSILPARK, HILLHEAD, AND KELVINSIDE.

"Six of the registration districts of Glasgow, viz:—St. Rollox, Dennistoun, Hutchesontown, Gorbals, Tradeston, and

Kinning Park, project beyond the former municipal boundary. These projections are known as the 'Landward' parts of those districts, and included the burghs of Govanhill, Pollokshields (East), Pollokshields and Kinning Park, besides considerable areas which were not burghal. At the date of the census it was certain that the burgh of Hillhead with the district of Kelvinside, within the registration district of Partick, and the burgh of Maryhill with the district of Possilpark, within the registration district of Maryhill, would be added to Glasgow. Arrangements were therefore made with the registrars of Partick and Maryhill to supply exactly the same information regarding those burghs and districts as was extracted regarding the city and the burghs and districts in the 'Landward' parts of the six Glasgow registration districts. In this way statistics were obtained relative to a suburban population of 92,231 persons in a form comparable with those of the city proper.

"Rate of Increase.—At last census these districts had a population of 66,738, so that it has increased 38 per cent in comparison with the city's 11 per cent. It is evident, however, when we include the suburbs, that Glasgow, like London and other cities, has fallen off in its rate of growth. In my report on last census, p. 13, I showed that the population of the 'Landward' parts of the registration districts of Glasgow increased, 1861-71, by 194 per cent; 1871-81 by 137 per cent. Now we find that in 1881-91 they have increased only 34·5 per cent. Nor has the development taken a new direction or gone further afield. The Registrar-General's 'Glasgow, Landward and Suburban,' includes, besides the 'Landward,' the whole of the registration districts of Partick, Maryhill, Govan, Plantation, Eastwood, and Cathcart, and yet the increase is only 30 per cent in the last decade.

"Age.—The general character of the age distribution of the population of the suburbs, as compared with the city, is that in the suburbs there is a smaller proportion of children under 5 years and of adults above 40, and a larger proportion of persons between 5 and 40. This is just what one would expect. The vigour of manhood and womanhood prevails in the suburbs. It is possible, in looking over the age distribution of the districts, to distinguish the fashionable from the working-class suburb by the smaller proportion of infants and adolescents, the great excess of persons between 15 and 30 or 40, and the larger proportion of aged people.

"Born in Ireland.—In the suburbs 7·6 per cent of the population are natives of Ireland, as compared with 10 per

cent in the city. There are striking contrasts between the districts. In the villa districts the proportion is always low, but there are working-class districts quite as low, although the largest proportions are always found in such districts. Thus, for example, 14 per cent of the inhabitants of Maryhill are Irish-born, and 12 per cent of the inhabitants of Kinning Park; yet in Govanhill there are only 2·7 per cent. In Kelvinside there are 3 per cent, and in Pollokshields, the lowest proportion observed, little over 1 per cent.

"Empty Houses.—5·8 per cent were found empty as compared with 4·4 per cent in the city. This suggests a tendency to overbuilding in the suburbs. Possibly, however, the unfortunate proximity of the census Sunday to the Spring and Easter holidays may explain the largest proportions—which are 9 per cent in Hillhead, and 8 per cent in East Pollokshields and Kelvinside.

"Inhabitants per House.—In the suburbs there were 5·084 persons per house; in the city, 4·727. In all the suburban burghs the average number of inmates per house was higher than in Glasgow, being highest of all in Pollokshields, 6·384. As already explained, this datum is only useful for statistical purposes. It gives no measure of comparative house space.

"Rooms per House.—In the suburbs there were 3·70 rooms per house; in the city, 2·33. The largest average house was in Pollokshields burgh, 10·79 rooms; followed by Kelvinside with 9·66, and Hillhead with 6·33. The smallest average house was in Polmadie, 1·80 rooms, which is not so small as the smallest in the city districts.

"Inhabitants per Room.—The average number of inhabitants per room was 1·375 persons in the suburbs, and 2·033 persons in the city. The highest average number was found in Polmadie, 2·746; the next, 2·44 in Kinning Park burgh. The lowest average was in Pollokshields burgh, ·592 of a person per room; followed by Kelvinside ·618, and Hillhead ·771.

"The Suburban Inhabitants grouped according to the size of their Houses.—The suburban 1 and 2-room houses are more crowded than those of the city. A suburban 1-room contains on an average 3·58 inmates; while the city 1-room contains 3·23. A suburban 2-room house contains 2·60 inmates per room; while the city 2-room house contains 2·47

"The Suburban Districts compared as to the Housing of their Population.—In a survey [omitted here] of the house-room of those suburban districts Polmadie (the non-burghal part of Hutchesontown Registration District) cannot fail to attract our anxious attention. Among those districts it has much the largest proportion of its population living in houses

of 1 and 2 rooms—viz., 25 per cent in 1 room and 64 per cent in 2 rooms, or 89 per cent in all. In the city there are several districts, a larger proportion of whose population live in 1-room houses, but only one (Port-Dundas) in which the proportion in 2-room houses is exceeded. *But no district in Glasgow has so large a proportion of its population living in 1 and 2-room houses.* Even in Bridgegate and Wynds there is only 66 per cent so housed, as compared with 89 per cent in Polmadie. *Even more serious is the fact that the average number of persons per inhabited room in Polmadie—viz., 2·746, is higher than in any not only of the suburban, but even of the city districts.*

“VI.—THE CENSUS AND THE ESTIMATED POPULATION, 1891.

“In the years intervening between each census the citizens of Glasgow always have two estimates of the population before them—(1) By the Registrar-General; (2) by the Medical Officer. The former basis his estimate on the rate of increase ascertained to have prevailed during the previous decade; the latter on the average number of inmates per house inhabited at the census applied to the return of occupied houses made up at the middle of each year from the assessment roll by the City Assessor. It is a matter not of mere curiosity, but of great practical importance to compare these estimates with the results of the census, and endeavour from experience to improve the local method of estimating the population which is obviously capable of being made much more accurate than the national method.

“At the date of the census the local estimate for 1891 had not been made, because the Assessor's return of occupied houses is not obtained until June. I have calculated it now, so that we have the following series of populations:—(1) The Registrar-General's estimate; (2) the Medical Officer's; (3) the census with a quarter's increase added so as to make it, like the others, the midsummer population:—

- (1) 532,282
- (2) 574,800
- (3) 567,143

“The Registrar-General's estimate was 34,861 less; the Medical Officer's only 7,857 more than the true population. The error in the former case was – 6·5 per cent; in the latter case + 1·3 per cent. Death-rates calculated on the Registrar-General's estimate would be from 1 to 2 per 1,000 above, and on the Medical Officer's so slightly below the true death-rate as to be practically correct.

"VII.—'GREATER GLASGOW.'"

"By the City of Glasgow Act, 1891, on 1st November, 1891, the area of Glasgow was almost doubled, and the population increased by nearly one-sixth. Although, for the reasons already explained, it was not possible to obtain at the date of the census, regarding a large portion of the district now added, the same ample data as were obtained regarding the North-Western Districts, since the Act passed, the population of the omitted parts has been accurately ascertained. I shall now submit the statistics of 'Greater Glasgow' on 5th April, in so far as they can be given uniformly for the whole.

"The following is a condensed statement of the area, number of inhabited houses and population, as at 5th April, of the district which became 'Greater Glasgow' on 1st November :—

	Acreeage.	Houses		Rooms.	Population.
		Inhabited.	Empty.		
Old Glasgow,	6,111	117,551	5,440	275,417	565,710
New do.,	5,750	17,331	1,223	73,441	92,363
Greater do.,	11,861	134,882	6,663	348,858	658,073

"The census showed that Old Glasgow was ahead of Liverpool by some 50,000, so that without extension our position in the rank of the cities of the United Kingdom was secure, as determined by population. The extension has placed it beyond all likelihood of ever being challenged. As determined by area, however, even Greater Glasgow occupies only the fifth place; the area of Manchester, Sheffield, and Leeds,* as well as of London being greater. The change from Old to Greater Glasgow is exhibited statistically in the following parallel columns :—

	Old Glasgow.	Greater Glasgow.
	6,111 acres.	11,861 acres.
Area,	6,111	11,861
Population,	565,710	658,073
'Institutions,'	9,315	12,800
'Shipping,'	746	750
Population without Institutions and Shipping,	555,649	644,523
Inhabited houses,	117,551	134,882
Empty houses,	5,440	6,663
'Institutions,'	27	35
Rooms,	275,417	348,858
Rooms in Institutions,	2,078	3,309
Persons per acre,	93	56
Percentage empty houses,	4.4	4.7
Rooms per house,	2.325	2.562
Inhabitants per house,	4.727	4.778
Inhabitants per room,	2.033	1.865

* The area of Leeds is 21,572 acres, with a population of 367,500 !

"The average House-rent in Old Glasgow, New Glasgow, and Greater Glasgow.—Mr. Henry, the City Assessor (whose obliging assistance I here gratefully acknowledge), has furnished me with a statement of the annual value of house property in Old Glasgow, New Glasgow, and 'Greater Glasgow,' together with the number of houses occupied and unoccupied in each, which enables me to add the following interesting series of calculations of rent per house, and per person :—

	Total House Rental.	No. Houses.	Rent per House.	Rent per Person.
Old Glasgow,	£1,316,000	124,061	£10 12 1·84	£2 4 10·6
New do.,	477,255	18,924	25 4 4·69	4 18 3·9
Greater do.,	£1,793,255	142,985	£12 10 9·98	£2 12 5·8

"In 1881 the average rent per house was £11, 6s. 9d. in Old Glasgow. It is now 14s. 7d. less; a change which does not show that rents have fallen, but is merely another aspect of the fact already pointed out, that the proportion of large houses has diminished. In 'Greater Glasgow' it may be said that house rent costs every inhabitant one shilling per week on the average.

"The districts which are thus combined under one municipal administration, are, when regarded as to their previous administration, seen to be a remarkable collection of shreds and patches. As to local government, they were 6 police burghs, viz.:—Maryhill, Hillhead, Pollokshields, Pollokshields, E., Govanhill, and Crosshill, and rural parts of two counties, viz.:—Lanarkshire (Lower Ward) and Renfrewshire (Upper Ward). Previous to the passing of the Local Government (Scotland) Act, they were for health purposes administered by those 6 police burghs and the rural parishes of Govan Combination, Barony, Cathcart, and Eastwood, as Local Authorities. The only local police force was that of Maryhill. All other parts were under the county police of Lanark and Renfrew shires.

"These jurisdictions all now disappear, but for School Board and registration purposes the added district will continue to be a collection of shreds and patches. It is under 6 School Boards, viz.:—Cathcart, Eastwood, Govan, Maryhill, Springburn, and Shettleston, of which 4 have schools within the city as extended. This will make the control of the attendance of children from infected houses very difficult.

"The old registration arrangements will continue until they are altered by the Registrar-General, which cannot be done too soon, as they are extremely complicated. The vital

statistics of New Glasgow must be collected and focussed from no less than 13 registration districts—viz., The Landward parts of 6 of the present Glasgow registration districts and 7 other registration districts, viz., Cathcart, Eastwood, Plantation, Govan, Partick, Maryhill, and Shettleston. Portions of 3 of the Glasgow registration districts (Landward) are still excluded, viz., Kinning Park, St. Rollox, and Dennistoun, and in the case of all the other registration districts only a part, sometimes a mere fragment, becomes urban. Only 22 of the population of New Glasgow live in the added portion of Shettleston registration district; only 40 in the added portion of Govan registration district; only 409 in the added portion of Plantation registration district. These facts all point to great trouble in the collection and adjustment of the vital statistics of 'Greater Glasgow,' and to the urgent necessity of a speedy rearrangement of the registration districts in and around the enlarged city.

"The Registrar-General at the census of 1881 constituted the suburban registration districts under the designation 'Glasgow Landward and Suburban' into a 'principal town.' In 1891 this had a population of 227,014. Adding Old Glasgow we have a population of 792,724. With the exception of the small contribution to 'Greater Glasgow' of 22 from the Shettleston registration district, this enormous aggregate includes the whole of New Glasgow with the burghs of Govan, Partick, Kinning Park, and the remainder of the registration district of Eastwood, which includes the burgh of Pollokshaws. If we add the Royal burgh of Rutherglen, which is now continuous with Bridgeton, we get 806,085 as the population massed within a radius of 4 miles of the Royal Exchange."

THE PATHOLOGICAL AND CLINICAL SOCIETY will meet in the Faculty Hall, 242 St. Vincent Street, on Monday, 11th inst., at 8 o'clock. The following specimens will be shown:—By Dr. Steven for Dr. T. K. Monro—Microscopic sections of a sarcoma from the neck of a chicken; by Dr. Steven for Dr. T. K. Monro—naked eye and microscopic specimens from a case of leukæmia; by Dr. Joseph Coats for Dr. A. G. Auld—(1) specimens of the pia mater in Bright's disease; (2) specimens of chronic kidney disease; (3) Fols' fluid for rapid hardening, &c.

TUBERCULOSIS AS AN INFECTIOUS DISEASE.—At page 15 will be found a full report of the Discussion on Tuberculosis as an Infectious Disease, held in the Glasgow Medico-Chirurgical Society, on the 18th December last. The Society, at a well attended meeting, determined to memorialise the Lord Provost and Town Council, informing them that tubercle is now regarded as an infectious disease, and praying them to take under their careful consideration means for preventing the spread of the disease. This resolution of the Society is a most important one, both as indicating the state of professional opinion in Glasgow on a subject which has long been debated and doubted, and as giving expression to a belief that the proper mode of preventing the disease is to take means for arresting the dissemination of the virus. We cordially agree with the resolution come to by the Society, and we think that the members in passing the resolution have done a most important and serviceable piece of work. So far as we are aware, this is the first time that any medical body has approached the Local Authority on the question of the infectious nature of tubercle, with a view to impressing upon it the possibility of diminishing the prevalence of the disease by preventing the dissemination of the virus. It is only by directing the attention of the public to the dangers of intimately associating together healthy and consumptive patients, and of treating tubercular discharges of any kind as if they were wholly innocuous, that we can look for any serious preventive efforts being undertaken, and we are not without hopes that the present action of the Society may be productive of good fruit in the future.

ROYAL HOSPITAL FOR SICK CHILDREN DISPENSARY.—The annual Christmas treat of the children attending the dispensary was held on the afternoon of Wednesday, 23rd December, 1891. After tea, the children were treated to a magic lantern entertainment, and each received a Christmas present of some useful article of clothing. The attendance was perhaps not so large as last year, but the little patients enjoyed themselves quite as much.

Dr. Ritchie Thomson has been appointed extra dispensary surgeon.

VISITING LISTS, &c.—A number of specimen copies have again come to hand. *Letts' Diary* is in the same form as in previous years, and can be safely recommended. Burroughs, Wellcome & Co.'s *A B C Medical Visiting List* is improved in

several particulars. It is diminished in size, and has a cash column added. It can also be recommended as a useful diary. The same firm also send us a specimen of a combined pen, pencil, and spatula, which they supply to the profession at the cheap price of 6d. We confess to thinking the arrangement (though likely to be useful) a little clumsy, but our readers can judge for themselves. Messrs. Burroughs, Wellcome & Co. will also send to any practitioner who writes for one a copy of their desk calendar for 1892.

NEW DRUGS, PREPARATIONS, &C.—We have received a specimen of “super-fatted” soap, as recommended by Dr. Unna of Hamburg, which is said to be very useful in irritable conditions of the skin. Specimens of benzozol, or benzoyl-guaiacol, and of iodopyrin are also to hand from Messrs. Burroughs, Wellcome & Co. The former is supposed to be of service in phthisis pulmonalis as a “harmless substitute for creasote, beneficially influencing the general nutrition, and consequently increasing the resistance of the patient to the disease.” The following is the account we have received of iodopyrin, along with the sample:—“This product is a chemical compound of iodine with antipyrin, in which an atom of hydrogen is replaced by iodine, thus— $C_{11}H_{11}IN_2O$. It is only slightly soluble in cold water and alcohol, but readily soluble in hot. It is perfectly tasteless and without odour. This product has been tested in the clinic of Professor R. R. v. Jaksch, and is reported upon by Dr. Egmont Munzer, in the pages of the *Prager Med. Wochenschrift*, 1891, Nos. 4 and 5. The product was first prepared by Dittmar (vide *Berichte der Chemische Ges. zu Berlin*, November, 1885). Dr. Munzer says:—“I have studied the action of this substance principally on two types of fever—(1) on typhus abdominalis and (2) on pulmonary tuberculosis. Five cases of typhus are recorded, and in each instance the temperature was rapidly lowered to normal. In the cases of tuberculosis pulmonum, the administration of the drug caused profuse sweating, and in every way the antipyretic action was all that could be desired. When iodopyrin is taken into the stomach it is decomposed into iodine and antipyrin.” We have no information as to the dose of either drug.

REVIEWS.

Die Entstehung der Entzündung und die Wirkung der entzündungerregenden Schädlichkeiten, nach vorzugsweise am Auge angestellten Untersuchungen, von DR. THEODOR LEBER, Heidelberg, mit 8 lithographischen Tafeln und 2 Holzschnitten. Leipzig: Wilhelm Engelmann. 1891.

(*The Origin of Inflammation, &c.* By DR. TH. LEBER.)

WE have here the record of a series of researches extending over many years. Dr. Leber is professor of ophthalmology in the University of Heidelberg, and, as is fitting, his researches are on the eye. But the author has a wider view than the pathology of local inflammation of this special organ. He seeks to contribute to the general question of inflammation. No one can doubt the importance of having correct views on inflammation, a subject which, from the time of John Hunter onwards, has been rightly regarded as lying at the foundation of pathological science.

The present researches are mainly experimental. In the first section the effects of the growth of true fungi in the eye are detailed. The fungus used is chiefly *aspergillus fumigatus*, but the *penicillium glaucum* and the *aspergillus niger* are also employed. We have next a section on the action of the *schizomycetæ* or microbes on the eye. Here it is chiefly the *staphylococcus aureus* and *albus* which are used, but there are also experiments with *leptothrix buccalis*. Having dealt with the action of the fungi and bacteria, the author next considers the influence of extracts of these organisms, the living fungi having been previously separated or killed. These experiments concern chiefly the *staphylococcus aureus*, extracts from which, when introduced into the anterior chamber, induce acute suppurative inflammation. There is now a long section on the influence of foreign substances in producing inflammation. We have thus experiments in which finely divided gold, silver, glass, iron, steel, copper, lead, mercury, arsenious acid, gutta-percha, croton oil, turpentine, cantharadin, &c., &c., are used, chiefly for injection into the anterior chamber and vitreous humour. We have, lastly, a section in which the changes occurring in inflammation, and produced by agents of all kinds, are carefully studied.

We must refer those specially interested in the details of this subject to the very elaborate descriptions, and to the excellent illustrations with which these are accompanied. We

turn to the concluding chapter to obtain a summary of the author's views on the general subject of inflammation, its causes and objects. We find the views of the author set down in clear and unmistakable language, and we are tempted to translate the whole chapter. It must suffice that we give a somewhat full account of its contents.

The author begins by saying that for the last 12 years he has been convinced that the processes occurring in inflammation show evidences of having an object in view, and that inflammation is to be regarded as a struggle of the tissues and organs of the body against the action of deleterious substances, chiefly against parasitic intruders. This leads directly to the consideration of the doctrine of phagocytosis, which is identified with the name of Metschnikoff. The author recognises the great service done by Metschnikoff in calling attention to the view of inflammation which makes it intended to effect a purpose in the economy of nature. But, according to the author, phagocytosis is neither the only nor the principal means by which the opposition of the body to the intrusion from without is effected. He also objects to the doctrine of immunity being hinged on phagocytosis. His words here are as follows:—

“According to Metschnikoff, phagocytosis is not only a means of combating agents which have a local deleterious action, but is also to be regarded as the method by which immunity to pathogenic microbes is effected. According to the most recent observations, there can be no doubt that in this respect he goes too far; immunity, that is the absence of development or the death when introduced into the body of the microbic germs, which in other animals and under other conditions develop and act as specific agents of disease, depends largely, and probably chiefly, on processes which occur outside the cells, and the accumulation of the microbes inside the leucocytes which partly occurs, is to be assigned a subordinate part.”

In regard to inflammation in general, he says:—

“Inflammation is a series of individual processes, which, while all produced by the action of the injurious agent, are also subservient to the purpose of removing the agent.

“This is most pronounced in the acute suppurative inflammations, where the great intensity of the disturbing action requires the opposing force to be as active as possible.

“In this case there is produced, through the action of the agent on the blood-vessels, a local dilatation and a retardation of the blood-current, with the resulting paving of the

internal wall with leucocytes. Then we have these latter wandering out of the vessels towards the place of greatest concentration of the deleterious substance.

"The cause of this emigration is the chemiotaxic action of the inflammatory irritant on the contractile leucocytes; its object is the accumulation at the seat of injury of a rich supply of these cells which are intended to combat the injurious influence."

The author thus agrees with Metschnikoff that the leucocytes are there to oppose the intruding agent. He also acknowledges that the leucocytes are useful to the body by removing foreign substances and disintegrated portions of tissue. They are also useful, where the agent producing inflammation has killed parts of the tissue, in separating the necrosed from the living. But the part which leucocytes play in actually inhibiting the microbes is much more doubtful. Our author here says:—

"To the processes hitherto mentioned, we have to add that during the inflammatory process the microbes suffer an inhibition of their development, and under certain conditions are killed. It is not yet determined whether and how far the leucocytes or other agents contribute to these effects. I must, in particular, assert, from my own observations, that in *aspergillus-keratitis* an interference with development occurs, and the fungi stop growing and die as soon as the infiltration of leucocytes surrounds and encloses them. These observations make it probable that the leucocytes themselves contribute to the effect, but yet there may be a number of other factors at work, such as a stronger alkalinity of the fluids, withdrawal of oxygen from the nutrient substrata, &c."

The question is still more difficult in relation to the bacteria, as these microbes naturally assume a cessation of activity, and it cannot be known whether the leucocytes seize on those which have already become weakened or have died. We must confess, on reading these pages, that the author, while admitting the undoubted facts of phagocytosis, is inclined to minimise the importance of it. It is right to exercise a wise caution in the matter.

There are some acute inflammations in which there is little emigration of leucocytes, such as in diphtheria, which is rather characterised by necrosis and fibrinous exudations, the latter being poor in leucocytes. The author accounts for the difference by asserting that some substances, in their dilute state, have a much greater chemiotaxic influence on the leucocytes than others. Perhaps the great malignancy of diphtheria is

due to the insufficiency of the protective processes which are brought into play.

In his concluding sentences, the author strongly asserts the local nature of inflammation.

"Under all circumstances there is the most intimate relation between the local distribution of the cause and the resulting reaction. The inflammatory process never extends as such, but always in consequence of the extension of the causes underlying it. This has been shown in all my investigations. We may associate with this the harmlessness, and indeed the usefulness of pus in itself, and the fact that pus owes its infective characters only to the microbes which it may contain. Aseptic pus may remain and be left for absorption without any harm to the organism, as is shown by my observations on the human eye, in which the retrogression of the local suppuration induced by the presence of copper was observed after the extraction of the foreign body. These observations may serve as a proof that my investigations, undertaken essentially with a view to the solution of a theoretical question, have not been quite without some utility for practice."

We leave this substantial piece of work with the greatest respect for the industry, ingenuity, and devotion of the author.

The Physical Signs of Cardiac Disease. By GRAHAM STEELL, M.D.Edin., F.R.C.P., Physician to the Manchester Royal Infirmary, and Lecturer in Clinical Medicine, Owen's College. For the use of Clinical Students. Second Edition. Manchester: J. E. Cornish. 1891.

FOR the use of his own students, Dr. Steell has issued this little volume, which is similar to a previous one on *The Physical Signs of Pulmonary Disease*. In brief compass, he describes the various methods pursued in physical examination of the heart, and the results obtained by these, in health and in disease.

This book, being an introduction to the study of cardiac phenomena for use at the bedside, the author has used a somewhat condensed style, and has entered but little into controversial matters. He has, however, placed his facts before his readers in a very useful form, and we have no doubt that he will find a large audience among students. The busy practitioner also, who wishes to refresh his memory on the leading facts of physical examination, will find in Dr. Steell a very competent guide.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1891-92.

MEETING III.—4TH DECEMBER, 1891.

DR. HECTOR C. CAMERON, *Vice-President, in the Chair.*

I.—THE ANTISEPTIC TREATMENT OF BURNS.

BY MR. MAYLARD.

Mr. Maylard read a paper on "The Antiseptic Treatment of Burns," which is published in full at p. 1. In the discussion upon it the first speaker was

Dr. Knox, who agreed very heartily with the conclusions that Mr. Maylard had drawn from his methods. The only burns coming under Dr. Knox's notice among hospital patients were those he himself produced—by the actual cautery, and for some years he had used the treatment for them advocated by Dr. Duncan of Edinburgh. First of all he made the part aseptic; with Mr. Maylard, he agreed that the burning agent destroyed the germs on the surface affected, but it did not affect those on the surface around, so he made those parts aseptic. After making a tolerably severe burn with the cautery, he dusted over the part with iodoform, and applied a dressing of bichloride gauze. With that method he never found any necessity for removing the dressing, and the wounds healed by the process of scabbing. It often required a long time, as in a case he had cauterised six weeks before, in which five weeks after the operation the scabs had not separated. He had no doubt that antiseptic treatment would act equally well in other classes of burns by destroying any germs in the tissues.

Dr. Rutherford hoped that his remark would not seem hypercritical, but he had some exception to take to the claim which Mr. Maylard had made to completely sterilise a foul burn—a burn once septic. He had some difficulty in following him in his description of a burn which, once septic, remained foul in regard to smell, and yet became aseptic, and he thought that demonstration of this would be possible only by bacteriological investigation. He thought this claim of interest, not only because it illustrated the claims of the powers of antiseptic surgery, but also because it ignored the natural

tendency to healing, and the exact process which did obtain. He had no desire to asperse or challenge the claims made as to the success of the antiseptic procedures, but he did think that the explanation given was indefensible. He thought that a moist dressing, such as had been recommended, fulfilled the conditions required, not because it sterilised the slough or piece of dead tissue of any extent which was in the process of separation, but because of the precautions taken prior to the applying of the dressings, and because of the continued inhibitory or destructive action of the dressing on the organisms, which would otherwise have multiplied, and become increasingly irritating to the wound.

Dr. Cameron expressed the great interest with which all had listened to the paper. The first point to which he referred in detail was that raised by *Dr. Rutherford*—as to whether a slough, putrid to the sense of smell, could be aseptic. He was familiar with analogous facts in clinical surgery, as for example, in the case of empyema, where the discharge might be foetid and yet, if the skin were rendered aseptic before operation, and the operation were conducted with antiseptic precautions, and the wound dressed antiseptically, within a short time the discharge might become “sweet,” even though no antiseptic solutions had been injected into the cavity. There were, however, explanations for such cases which did not apply to burns. *Mr. Maylard* had founded his opinion as to the absence of sepsis in his cases upon the absence of general reaction, but *Dr. Cameron* could mention a case in the Western Infirmary at that time, suffering from severe compound fracture of the leg, in which there was no rise of temperature and no loss of appetite, but there was an exceedingly bad smell from the wound, and no question that the whole limb was in a very septic condition.

Another matter to which he would refer was *Mr. Maylard's* faith in *Condy's* fluid as a deodoriser, as in the case of the boy whose dressings were allowed to fall into a bath containing water with some *Condy's* fluid in it, in order to destroy their foul odour. *Dr. Cameron* had found *Condy's* fluid as generally employed in a wash-hand basin to be useless as a deodoriser, and he followed the plan of washing his hands in pure *Condy's* fluid and then removing the stains with oxalic acid, and even then, when dealing with such a thing as a stinking empyema, the odour might only be temporarily removed.

As regards *Mr. Maylard's* plan of treatment, he thought that it would be found to act best in the case of limited burns. He could remember the time of water dressings for

burns, and he did not remember seeing a water dressing over an extensive surface which did not stick somewhere on attempt at removal. Theoretically, there should be no loss of moisture, but with the difficulties there were of bandaging properly and of getting patients to rest quietly, dressings would slip, and a certain amount of drying and sticking would take place. This was an objection in detail, not an objection to the treatment itself.

Mr. Maylard, said he was sorry that Dr. Cameron had not taken notice of the point he had raised as to whether, in case of vesication, the blisters should be left or have their contents let out.

Dr. Cameron said that he never did pierce them, though many were sure to burst of themselves.

Mr. Maylard continuing, expressed his satisfaction that the question had been raised by Dr. Rutherford, and alluded to by the Chairman, as to whether one could render a septic part aseptic. Since he had had to deal with antiseptic surgery, it had struck him that if antiseptics had the power of preventing a part from getting septic, why should they not have the power of rendering a septic part aseptic? He had determined to put this to the test while on duty in Dr. Cameron's wards in the Western Infirmary. He had taken two cases of gangrenous toes, and had caused the affected parts to be soaked for some time in strong bichloride solution; in one case he did render the part aseptic, in the other he did not. The point which Dr. Rutherford had very rightly raised was—whether a part which had been septic, and still had a foul smell, could be aseptic. He thought that when Dr. Cameron introduced the subject of empyema, he would refer to a case of empyema where the fluid was very foul smelling, but where, after careful cultivation experiments, Mr. Maylard had been able confidently to say that there was not a living microbe present. He had published the case in the *Lancet* at the time.

Dr. Bryce would remind Mr. Maylard that in that case many microbes had been seen under the microscope.

Mr. Maylard said that was quite so, but that they were not alive.

Dr. Cameron remarked that when referring to empyema, he did not go in detail into that part of the subject, because in the case of a foul smelling empyema there were other explanations than in the case of a foul smelling burn, some bacteriologists saying that the organisms, which flourish in the foetid pleuritic fluid, would not live in artificial media or in the serum which was afterwards exuded. One could not,

therefore, say that they had not been alive in the original fluid, though they failed to live in the serum or in the media used.

Mr. Maylard could not agree to that. In such cases the organisms present were putrefactive organisms, and these were very easily cultivated, and could live on anything. In the particular case he had referred to, they were dealing with organisms which would have lived on any artificial medium. He still held to his opinion that one might have a smelling sore, and yet that it might be in every other sense aseptic. With regard to *Condy's* fluid also, he was afraid he must differ. In the particular case of the boy alluded to there was tremendous relief, remarked upon by all those engaged in the dressing of his burn. It was a pretty strong solution of "*Condy*" that they had used. He had found similar benefit from *Condy's* fluid as a deodoriser in the treatment of a bad lacerated wound. But he must own that it was very difficult to deodorise one's hands. With regard to the last point raised by *Dr. Cameron*, he had to admit that to carry out this form of treatment properly one must deal with limited burns.

II.—SARCOMA OF BREAST.

BY *DR. KNOX*.

Dr. Knox gave the following account of this case:—Miss *A. G.*, æt. 28, was admitted to the Glasgow Royal Infirmary on 20th November, 1891, complaining of a tumour in the left breast. About thirteen months ago a swelling was first noticed, about the size of a pea, beneath the skin of the anterior fold of left axilla. This tumour was freely movable, and gave no pain. It gradually increased in size, and two months ago, when about the size of a damson, it was removed. After the operation, she states, there was a great deal of bleeding, which was only stopped with much difficulty. The wound healed in three weeks, and immediately thereafter a small nodule appeared in the cicatrix, and rapidly enlarged. It presented, on admission, the appearance of a very vascular growth; the skin, full of small vessels, was closely adherent to it, but there was no infiltration around, nor much adhesion to deeper structures. It seemed to me, however, to involve the outer part of the mamma, and I therefore, on the 24th November, removed the entire gland and tissues around in a very free manner. The wound has since almost completely healed, and the patient will soon be able to leave the hospital.

On microscopic examination, the tumour appears to be a mixed round and spindle-celled sarcoma.

Dr. Rutherford asked *Dr. Knox* with regard to the anatomical situation of the tumour, and as to whether he thought it justifiable to describe it as a "sarcoma of the breast." He did not know whether it was even within the area of the gland. So far as he knew, sarcomata of the breast were rather rare, adeno-sarcoma of the breast being pretty well distinguished from such a tumour as they had there, in respect that it seldom or never became infiltrating (while this one had infiltrated the skin), though it might attain very large dimensions short of that. He spoke subject to correction in regard to individual cases.

Dr. Cameron—It is a recurrent tumour, is it not?

Dr. Knox replied that it had recurred. He was inclined to agree with all that *Dr. Rutherford* had said. The tumour had involved the skin and connective tissue. It had also involved the outer part of the breast. He did not consider it a tumour of the breast. It was a tumour of the region of the breast, and no more entitled to the name of tumour of the breast than tumours which grow from behind the breast. It was not an adeno-sarcoma of the tissue of the breast.

III.—GASTROSTOMY IN CASE OF MALIGNANT STRICTURE OF THE ŒSOPHAGUS.

By *DR. KNOX*.

Dr. Knox showed a patient upon whom this operation had been performed, and whose history is as follows:—

J. L., æt. 48, was admitted to the Glasgow Royal Infirmary under my care on 12th October last. He complained of great difficulty in swallowing his food, and of a burning pain in the epigastric region. The difficulty in swallowing was first noticed seven months before, and had been gradually increasing. He had also been losing flesh. On admission, it was found that he still could swallow fluids without much difficulty, but a stricture quite impassable to bougies existed at the lower end of the œsophagus. There was slight pain over the xiphoid cartilage of a steady burning character, aggravated by the passage of food. His temperature was slightly above normal. Each mouthful of food swallowed took about half a minute to pass through the stricture. As it was obvious that the complete closure of the stricture was only a matter of time, I decided to perform gastrostomy while the swallowing of fluids was still fairly accomplished. The first stage of the operation was performed on 23rd October, and was performed exactly as in the case formerly described in this Society. An oblique incision $1\frac{1}{2}$ inch long was carried through the upper part

of left rectus abdominis muscle about 1 inch from costal margin. Through this the stomach was drawn and attached to the margins by a double row of sutures. The operation was completed by opening the stomach 7 days later.

After the first operation the condition of the patient was extremely good. There was no sickness. During the first day he had four teaspoonsful of Valentine's meat juice, and one or two tablespoonsful of iced water by the mouth, and three meat suppositories. The Valentine and the suppositories were given alternately for several days. He slept by snatches during the first night, and had once only $\frac{1}{4}$ grain morphia suppository. After this he had milk and soda water in small quantities, no more being given than was necessary to sustain life, with the view of giving as much rest to the parts as possible. Later on it was found that he could actually swallow better than he could before the operation, and that his temperature from the date of the operation was lower than before. Both of these results, I believe, are due to the rest given to the stricture, and to the consequent subsidence of inflammatory thickening around stricture. The after progress of the case has been most favourable. The only change to be noted is that this morning there is renewed difficulty in swallowing, and there is a great tendency for the opening in the stomach to close, requiring the frequent passage of the tube to keep it open.

IV.—CHLOROFORM INHALERS.

BY DR. WALKER DOWNIE.

Dr. Downie exhibited "The Hyderabad Chloroform Inhaler," with Krohne's patent respiration indicator, and also a Junker's inhaler furnished with a similar indicator. He thought they would be of interest to the Society, especially in view of last session's discussion on anæsthetics. He explained that the Hyderabad inhaler consisted of a hollow wire frame in the form of a cone, covered with flannel, and furnished with a removable inner conical flannel bag. On the side there was an opening through which the chloroform was allowed to fall from a dropping bottle upon the inner flannel bag. The base of the cone was set over the patient's mouth, and at the apex Krohne's indicator was placed—a feather indicating by its rise and fall the acts of expiration and inspiration; there was thus no special reason for exposure of the chest.

The inhaler was recommended by the Hyderabad Commission as being preferable to Junker's inhaler, because of its not having any rubber or other material readily destroyed in

a hot climate. It was essentially an open cone through which all air inhaled by the patient must pass over a bag impregnated with chloroform.

Dr. Barlow and other members criticised the Hyderabad inhaler rather adversely, pointing out that, though it might be suitable for use in experiments on dogs, &c., it could not be used for the human subject without being removed each time fresh chloroform had to be added; with the patient lying upon his back, even with the inhaler well down over the chin, the cone was still too nearly vertical to admit of the chloroform being dropped through the aperture.

Dr. Knox mentioned that a London surgeon, in chloroforming a patient for him on the previous day, had used an inhaler fitted with an indicator, and that the latter seemed to act simply and well.

Dr. Bryce thought that all those inventions, acting as substitutes for the care and intelligence which a man should bring to his case, were rather dangers than safeties.

Dr. Cameron remarked also that all such apparatus required scrupulous care as regards cleanliness.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

SESSION 1891-92.

MEETING II.—25TH NOVEMBER, 1891.

The President, DR. HALKET, in the Chair.

I.—UNILOCULAR OVARIAN CYST.

DR. NIGEL STARK showed a very large unilocular ovarian cyst which he had recently removed.

II.—INFANTILE DEFORMITIES AND MATERNAL IMPRESSIONS.

By DR. HALKET. (See p. 8.)

In the discussion which followed,

Dr. Reid said that in Spain, among the lower classes, the birth of a deformed child was not regarded with horror as in our own country, but was rather rejoiced over in the prospect of future gains from exhibiting it, if it survived. He could

not see how direct violence could possibly displace any part of a foetus in utero without causing its death. Breaking of a bone might occur without premature labour ensuing, but he had never seen a case. As there were no nerves in the umbilical cord, the impression must be conveyed in some other way, as through the blood, if it were conveyed at all.

Dr. M. Cameron said he did not believe in maternal impressions at all. In Italy pregnant women frequented the churches to contemplate the pictures of the Madonna and Child, so that their children might be Christ-like; but, judging from the nature of Italians generally, the result was not encouraging. Among the Chinese he would expect the children to be born with small feet, but this was not the case. Among the Jews he had not heard of children being born minus the foreskin or with shrunken sinews, although the mothers must be constantly thinking of circumcision and the shrunken sinew. He had never heard of a slave woman giving birth to a child with the marks of flogging on its back, although the women must have frequently been flogged when pregnant. For direct violence to have any effect on the foetus in utero it would need to be near full time. He considered the cause to be due more probably to disease of the placenta and membranes.

Dr. Pollok was of opinion that the explanations so frequently given by women was due to their anxiety of explaining away what they considered was a slur upon them.

Dr. Miller related several cases he had seen, and gave the explanations given by the mothers.

Drs. Stark, Jardine, and Gunn also spoke, and *Dr. Halket* replied.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

MEDICINE.

By JOHN H. CARSLAW, M.A., M.B., C.M.

Heredity of Tuberculosis.—While so much attention is being directed to the infectious nature of tubercular disease, it may not be unfitting to refer to two articles, insisting upon the other side of the question, which appeared in the *Deut. Med.-Zeitung* for 2nd and 5th November. They are entitled, "Further Contributions on the Significance of the Heredity of Tuberculosis," by *Dr. August Haupt*. His previous conclusions are thus summarised:—

1. The spread of human tuberculosis is accomplished principally by transmission from generation to generation.

2. Cases of direct infection by the sputa are so infrequent that one cannot consider that to the common method of spreading.

The present papers, while not denying that tuberculosis is an infectious disease, consist essentially of an analysis of the most recently published experiments and statistics, which are held to prove that it is also often inherited. A case of Birch-Hirschfeld is quoted to show the occasional occurrence of congenital tuberculosis. A phthisical woman, 23 years of age, was in the seventh month of pregnancy when it was found necessary to perform Cæsarean section. The mother died of milary tuberculosis, and tubercle bacilli were found in her blood, but also in the liver of the child. Some small portions of the liver, spleen, and kidneys (presumably of the child) were introduced into the abdomen of rabbits, and tuberculosis was produced. It is thus considered proved that the tubercle bacilli can pass from the maternal to the fetal circulation, and what is usually considered an inherited tubercular predisposition is held to be simply inherited, but still occult, tuberculosis. Rindfleisch also is quoted. His case was that of a woman who became ill during her pregnancy with "galloping consumption;" the child died eight days after birth of caseous pneumonia, implying that the beginning of the tuberculosis had been intra-uterine. Similar facts are cited from veterinary surgery. Prof. Bang of Copenhagen has concluded, as the result of his experience, that—"Tuberculosis can be inherited either from the cow or from the bull, and when both have lung disease, the calves are almost without exception tuberculous. It is not only the predisposition, but the disease itself which is inherited; what we have to do with is an infection of the calf during the gestation. Very often the tuberculosis is congenital, although distinct symptoms are evident only after some weeks or months."

Landouzy of Paris has also made experimental investigations with regard to congenital tuberculosis, and in association with Martin he has shown that even although no evidence of tuberculosis may be detected by the naked eye in a fœtus born of a phthisical mother, yet when portions of it are inoculated tuberculosis develops in the animals used for the inoculations. In answer to the possible objection that the children of tubercular parents developing tuberculosis in early childhood have become infected after birth, Landouzy points out that if those children are brought up by a healthy nurse, at a distance from the tuberculous parent, and yet develop the tuberculosis, they must have been born tubercular—just as the children of syphilitic parents are born syphilitic. The transmission of tuberculosis from the father, while the mother remains healthy, is held to be quite analogous to the similar transmission of syphilis. In support of the view that the semen can be thus infective, Landouzy and Martin had shown by experiment that inoculations of the semen of tuberculous rabbits into healthy rabbits produced tuberculosis in one-third of the cases.

In view of the facts mentioned with regard to the transmission of tuberculosis (latent) to the offspring of tuberculous parents, Landouzy recommends great care in the treatment of even the most apparently trifling ailments in the children of such parents, as these may be the starting point of tuberculosis.

Other authors are thus considered in detail, and at the close Dr. Haupt gives the results of his own statistics of phthisical cases. These had belonged in great part to the better classes of society, and thus were tolerably well informed as to their family histories. In 471 cases he had lately traced heredity in 328. His previous figures had given him, out of 617 cases, 429 cases with hereditary predisposition. Taking the series together, he had 1,088 cases of phthisis, with 757 (or two-thirds of the whole) in which he could characterise the disease as hereditary.

Various Organic Injection Fluids.—In the *Bull. Méd.*, No. 87, 1891, Brown Séquard again publishes cases to prove the efficacy of his fluid in the treatment of disease, instancing its favourable effect in tabes dorsalis, hemiplegia, diabetes, and tuberculosis. Dr. Onimus, in Monaco, is said (in the

Wien. Med. Bl., No. 41, 1891) to have been able, by means of injections of a "heart-muscle-extract," to restore normal cardiac action in a case of heart weakness with orthopnoea. An "extract" of the spinal cord is also said to have been found useful in "general weakness" as well as in certain affections of the central nervous system. In the same connection may be mentioned the treatment of myxœdema by subcutaneous injections of an extract of the thyroid gland of the sheep described by Dr. G. R. Murray in the *British Medical Journal* for 10th October.—(*Deut. Med.-Zeit.*, 16th November, 1891.)

Cure of Myxœdema.—In the *Freie Vereinigung der Chirurgen*, in Berlin, on 12th October, 1891, Dr. R. Köhler showed a case of myxœdema which presented certain peculiarities. The patient was a woman of 48 years of age, who had become ill in the previous November with rigor and headaches. The headaches were always worse in the evenings. Gradually there came about a complete change of her whole nature, and she became practically demented. At the same time she ceased to perspire, and there developed a callous condition of the skin of her head, neck, and arms. There was also a return of swelling of the glands of the neck, from which she had suffered in childhood. In February myxœdema was diagnosed in Gerhardt's clinique. Later on, in another department, there was suspicion of a tumour present in the neck being gunmatous. On account of the doubtful nature of the case, an anti-syphilitic treatment was adopted, and this was followed by remarkably beneficial results, the patient recovering completely her bodily and mental health. The diagnosis is, therefore, made of syphilitic degeneration of the thyroid gland, and myxœdema originated by such degeneration is, therefore, to be considered a curable disease.—(*Deut. Med.-Zeit.*, 26th October, 1891.)

Polyuria in Sciatica.—In the *Société Médicale des Hôpitaux*, on 9th October 1891, MM. Debove and Rémond (of Metz) referred to some cases of sciatica in which they had observed polyuria beginning with the pain and increasing and ceasing with it. One of the patients had had an attack of sciatica some years before, and had noticed the same phenomena then, the quantity having been normal in the interval and the urine being otherwise normal. The quantity during the attack was 105 to 140 ounces in the 24 hours.

As to the explanation of this polyuria, it could not be regarded as simply due to reflex action induced by the pain, for it was not observed even in severe facial neuralgia. Certain physiological experiments are quoted in support of another theory—if the central end of the sciatic be excited in the dog, arterial tension is increased, and as a result there is an increase of the urinary secretion. Perhaps this may explain the polyuria in sciatica. Whatever value may be attached to this theory, the clinical fact is claimed to merit attention. At a subsequent meeting of the same society (16th October, 1891) M. Lépine (of Lyons) recalled the fact that analogous observations had been made by his pupil Dr. Hugonard in 1880, and that he had established—

1. That moderate or strong stimulation of the sciatic diminishes considerably, or may even arrest the secretion of urine.
2. Slight stimulation of the same nerve augments the secretion. (Of this they had an apparent confirmation in the polyuria accompanying the neuralgia.)
3. If one of the kidneys is partly deprived of its nerves, the effect of the stimulation of the sciatic is less marked.—(*La France Médicale*, 16th and 23rd October, 1891.)

Anatomical Position of the Bronchi.—In the Congress of the Italian Medical Society in Siend in August, Messrs. Binci and Cocchi spoke as regards the topography of the bronchi in relation to the posterior wall of the thorax. In 21 children they had observed that the bifurcation of the trachea was opposite the body of the 5th dorsal vertebra, and the larger branches of the bronchial tubes were situated within an area bounded above by the 4th and below by the 8th intercostal space.—(*Deut. Med.-Zeitung*, 19th October, 1891.)

MATERIA MEDICA AND THERAPEUTICS.

By C. O. HAWTHORNE, M.B., C.M.

Chloroform as an Anæsthetic in Operations on the Neck.

—In a paper on the surgical treatment of tuberculous cervical glands, Mr. Edward Owen, the well known surgeon, makes the following remarks in support of his recommendation that a special anæsthetist should be engaged when anything like serious difficulty is to be anticipated :—

“In the whole course of my experience I have never met with an instance in which any child died from the administration of chloroform. But, so far as my recollection serves, the two instances in which I have seen this calamity most nearly approached, were in severe operations for the removal of tuberculous glands from the neck. In each instance I thought the child was actually dead—in spite of treatment by hanging it up by the feet, so as to stimulate the anæmic brain, and at the same time resorting to slow and rhythmic compression of the chest by way of artificial respiration. In one of these cases the father, a medical man of the Edinburgh school of medicine, was administering the chloroform to his child. Acting on the Scotch plan, he was not watching the pulse during the operation; but I must say that he behaved splendidly during the crisis. In the other case the failure of the pulse was noticed by the family medical attendant, who was present during the operation, the anæsthetist having contented himself with watching the respiration only. What it may have been with those friendly associates of the experimental physiologist, when under anæsthesia, the monkey, the dog, and the guinea-pig, I know not; but I am sure of this, that in the human species the pulse is terribly apt to fail before the respiration. And I fear that the teaching of the Hyderabad Commission—that only the respiration need be watched—will be accountable for much faulty administration of chloroform with the inevitable result. It is more than possible that the sudden syncope of these two children during the operation may have been owing to the serious disturbance to which the lungs, vessels, and nerves beneath the base of the skull were necessarily subjected during the removal by enucleation or scraping of adherent masses of gland.—(*Practitioner*, November, 1891.)

Bromide of Ethyl as an Anæsthetic.—Th. Kölliker recommends the employment of this substance as a convenient anæsthetic in operations occupying but a short time—such as the incision of abscesses, tenotomies, applications of the thermo-cautery, &c. He gives it by means of Skinner's mask, covered with a piece of flannel. He first places a few drops of the anæsthetic on the flannel, and after an interval of a few seconds, the whole quantity required, at the same time stopping the supply of air as far as possible. Anæsthesia is complete in from fifty to sixty seconds, and lasts about three minutes. For a child, the average dose is 5 to 10 grams; for an adult, 10 to 15 grams. He recommends that during the early part of the administration no noise or other influence, which might excite the patient, be permitted, and states that the administration of the bromide is not followed by any bad effects.—(*Centralblatt für Chirurgie*, No. 20, p. 385, 1891.)

Statistics of Anæsthetics. By E. Gurlt.—The following figures are based on the practice of the members of the German Surgical Congress during the last half of the year 1890:—Chloroform, 22,656 cases, with 6 deaths, and 71 serious attacks of asphyxia; a mixture of chloroform and ether, 1,055 cases, with 5 attacks of asphyxia; the A C E mixture, 417 cases, with 4 attacks of asphyxia; ether, 470 cases, and bromide of ethyl, 27 cases, without accident or complication.—(*Centralblatt für Chirurgie*, No. 26, p. 81, 1891.)

Ammonium Chloride in Epidemic Influenza.—In a paper recently read before the Academy of Medicine at Paris, M. Marrotte advocates

the use of ammonium chloride in the treatment of epidemic influenza in preference to quinine sulphate. It is claimed that this salt is more rapid in its action, and that it brings about a more complete and definite cure than quinine. Special benefit is said to follow its use in cases complicated with pulmonary congestion or inflammation. From 48-80 grains are given in twenty-four hours, in the form of 8-grain powders, which may be conveniently concealed in wafers.—(*Merck's Bulletin*, September, 1891.)

Electrolysis in the Treatment of Aortic Aneurysm.—At the recent meeting of the Association Française pour l'avancement des Sciences at Marseilles, two of the speakers strongly supported this treatment. Several successful cases were reported, one of whom had survived for a period of seven years, ultimately succumbing to an attack of broncho-pneumonia.—*Bulletin Général de Thérapeutique*, 15th November, 1891.)

Salol in Yellow Fever.—Dr. Ferreira, after careful clinical observation, has formulated the following conclusions:—

1. Clinical facts support the *intestinal* theory of the cause of yellow fever.
2. Intestinal antiseptics ought to constitute the basis of the treatment, and to be instituted from the outset.
3. Salol precisely fulfils these indications, being a gastro-intestinal antiseptic of the first rank.
4. The efficacy of salol has been demonstrated by a number of observations. It should be given in doses of 5 grains every two hours.

These conclusions are of special interest in connection with the advocacy of the use of salol in enteric fever by Dujardin-Beaumetz and others.—*Bulletin Général de Thérapeutique*, p. 198, 1891.)

New Physic.—The following remarks, from the pen of Dr. B. W. Richardson, are taken from a paper on "Old and New Physic," published in *The Asclepiad*:—

"The contrast between new and old physic in matter of practice is striking. We perpetuate few of the old errors, but we invent new ones for ourselves; we retain many of the old virtues, and we improve or add some by which the signs of such progress as we have made are indicated. In therapeutics the change is phenomenal. Our fathers followed Galen in the view that every practitioner ought to hold all his remedies in his own hand and dispense them himself; the chemist and druggist was the demon. Now it is considered too commonplace for the doctor to dispense his own remedies, and when he does so it is a sort of favour or necessity—something thrown in, to form, incidentally, or not at all, an addition to the fees for attendance. The doctor's boy with the two-lidded basket is becoming as defunct as the doctor's bill with the red-inked money columns on long sheets of bill-paper. The art and mystery of the apothecary has passed over to the pharmacist, who pockets the art and kicks out the mystery. This modified our prescribing altogether. The pharmacist pushes his trade industriously to meet our wants, and our wants are many. He grows bolder: he invents for us in advance of our needs. He floods our breakfast-tables with his nostrums, advices, and temptations. He is a professor of *materia medica*, pharmacology, hygienics, diet and regimen, all rolled into one. He has a new remedy for every day in the year, with two for holy days, so that any remedy that lives for a year has a long life. To the one grand narcotic of the old school, opium, so trustworthy, so obedient, so safe, when correctly mastered, there are now a hundred rivals, and not one its equal. The result is that a large section of practitioners is flying after everything, trying everything, and holding fast by nothing; whilst another smaller section is giving up everything, or, in state of greatest activity, is playing placebo with considerable luck in the play, to their own astonishment."—(*Pharmaceutical Journal*.)

GYNÆCOLOGY AND OBSTETRICS.

By E. H. LAWRENCE OLIPHANT, M.D.

The Remote Results of the Removal of the Ovaries and Fallopian Tubes.—The *New York Medical Journal* for 24th October, 1891, reports a discussion on this subject at the meeting of the Association of American Physicians in September of that year at Washington. Dr. T. W. Lusk opened the discussion by making a very strong plea for conservatism in operative gynecology. The removal of diseased ovaries and tubes was followed in very many instances by the relief of local pain; and the removal of pus collections, whether in the tubes or in the ovaries, eliminated a source of danger to life. When properly performed, the dangers of the operation were small, and not to be weighed against the terrors of chronic invalidism. This statement purposely ignored the question as to how far, in cases of tubal and ovarian disease, laparotomy could be avoided and equally good results be obtained by the healing influence of time and the procedures of minor gynecology, though, incidentally speaking, the minor gynecologist was looked upon with a certain amount of contempt by the pelvic surgeon. Still there was another side to this story; if castration were only followed by the conditions due to the climacteric change, the situation would not be so bad, but this was far from all. As to the favourable results following such operations in cases of mental and moral perversity, even where the appendages were diseased, they were invariably failures. Cases of swollen tubes and ovaries could be cured without having resort to operations for unsexing women. There was no doubt that the impression that the sexual functions were abolished after oophorectomy was erroneous. After a thorough study of this aspect of the subject the speaker had seldom found it altered from what it had originally been in each individual before the operation.

Dr. Wharton Sinkler did not subscribe to such procedures as this operation for the cure of nervous troubles. He had gone fully into the subject from the surgical standpoint, and he was unable to report any cures. He thought that after oophorectomy women did not become obese and gross as some thought. Such patients usually came for operation pale and emaciated, and they naturally regained condition, and this change had been taken for a pathological result. One of the results following the operation was seen in patients becoming nervous and irritable, due, no doubt, to cerebral hyperæmia. In many instances insanity had been known to follow oophorectomy. Acute mania followed other operations as well. Several gynecologists had reported cases where mental disturbances had occurred, but the question was how far the mental condition was due to the operation or to the previous long continued irritation of the pelvic disease. The immediate result of the operation was frequently relief from the pain, and from some of the distressing symptoms, but this improvement was eventually succeeded by a retrogression in the general condition, with a return of the aches and pain, and it not infrequently happened that when they returned the condition was exaggerated. The speaker thought the operation entirely uncalled for in cases of swollen tubes and ovaries, and that to castrate for the cure of neuroses or hysterical conditions of any degree was highly deplorable, but to operate where the organs were distinctly diseased and the diagnosis was positive was good practice.

Dr. Putnam had come to the conclusion that, as a means of curing neurasthenic conditions, this operation was more to be dreaded than the disease. He gave the histories of several cases surgically treated for adhesions, pain, and so forth, with marked nervous tendencies. Of course, nothing had been gained by the procedure. In the very nervous patients maniacal symptoms came on, and in all the pain remained or returned in a shorter or longer time after the oophorectomy.

Dr. C. C. Lee said that to operate in a neurotic case in the hope of cure was criminal. He had collected 920 cases, and where the operation had been done

for pain, adhesions, enlargements, and neuroses without structural change in the organs, he could not report a single instance of cure or of permanent benefit.

Dr. Reamy read a paper on the same subject before the American Gynæcological Society, at the meeting also held at Washington in September, 1891. He had removed the appendages in 164 cases. In 60 cases cure followed the removal of diseased structures. In 30 cases there was improvement, with subsequent relapse into the condition previous to operation, in the course of one to three years. The condition of the sexual appetite was ascertained in 44 cases. In 14 it was extinguished, in 7 diminished, in 16 unaffected, and in 7 it was increased. Among his conclusions, he found the operation a valuable measure in hystero-epilepsy, that it was not a good measure in neurotic cases, and that many cases of pelvic disease could be cured by less radical measures. Dr. J. T. Johnson did not believe the operation had any value in cases of nervous disease. Dr. Wyllie thought it should be remembered that there might still be uterine disease remaining and requiring treatment. In cases of very large fibroid tumours, the removal of the appendages would do no good. Dr. Coe believed that peritoneal adhesions were almost inevitable after abdominal section. This was the cause of the pain which was so persistent and also of the hæmorrhage in some cases.

Concealed Accidental Hæmorrhage during the First Stage of Labour.—This condition is so important, and is so meagrely treated of in the majority of our English text-books, that any information on the subject should be welcomed. Dr. H. C. Coe of New York read a paper on this subject in September, 1891, at the meeting of the American Gynæcological Society at Washington (*New York Medical Journal*, October, 1891). The author said that few cases had been carefully recorded, and he was indebted to the paper of Dr. Goodell, who had called attention to the subject in 1869. The condition was usually so overwhelming, and its results were so profound, that the accoucheur would usually have difficulty in so carefully observing the phenomena as to be able to recall them. Many of the women would of necessity die undelivered before the attendant could define and carry out the proper plan of action. The accident occurring in the first stage of labour, one would be very apt to be thrown off his guard as the patient became collapsed, the os being still rigid. The author believed that these cases must often have a traumatic origin, whether from blows or violent coitus, or what was akin to traumatism, coughing or straining. In the case he had observed, the placenta was fatty and calcareous, and there had been irregular uterine contractions as a possible ætiological factor. In some cases it would be possible to diagnose accidental hæmorrhage at its inception, especially if the uterine contractions were irregular and weak, with pain in the lower part of the abdomen, tenderness of the uterus, and weakness of the foetal heart action. The patient might be restless and yet able to move about. Soon there might be pain of a bursting character in the uterus, with a doughy feel. The hæmorrhage externally might be insignificant, though an enormous quantity of blood might have been poured into the uterus. The pulse and general appearance of the patient would be alarming, and the foetal membranes tense. In addition to the serious injury from loss of blood, the condition of shock would be a factor of great importance.

The prognosis was very bad—his own patient died in a very short time after delivery. Not only were skill and promptness on the part of the accoucheur demanded, but the patient's reparative powers must also be good. The death of the child was usually unavoidable. Rupture of the uterus might occur, especially if pressure upon the fundus, which was advocated by some writers, was practised. As to treatment, pressure from without was not indicated, especially if the head had not descended and the os was rigid. Dilatation, turning, and delivery would be effective in some cases. Stimulants should be given, and ergot subcutaneously. If the head descended, it should be perforated; if it did not descend, craniotomy (*sic*—?version) and delivery should

be practised. Another useful measure would be to tampon the uterine cavity with iodoform gauze after the placenta and clots had been removed.

Dr. Murray advocated plugging the vagina where the os was undilated. Dr. Fry thought this useless, and that *accouchement forcé* would increase the shock and the chances of a fatal issue. He referred to Dr. Lawson Tait's suggestion of Porro's operation. Dr. Coe, in reply, agreed that the treatment consisted in the use of stimulants, and rapid, intelligent, and not too forcible delivery. He considered Porro's operation about as useful as the *post-mortem* Cæsarean section.

Books, Pamphlets, &c., Received.

The Pathological Histology of Bronchial Affections, Pneumonia, and Fibroid Pneumonia, by A. G. Auld, M.D. With Illustrations. London: J. & A. Churchill. 1891.

First Lines in Midwifery, by G. Ernest Herman, M.B. With 80 Illustrations. London, Paris, and Melbourne: Cassell & Co. 1891.

The Harveian Oration on Harvey in Ancient and Modern Medicine, by W. Howship Dickinson, M.D. London: Longmans, Green & Co. 1891.

A History of Medical Education, by Dr. Theodor Paschmann. Translated and edited by Evan H. Hare, M.A., F.R.C.S. London: H. K. Lewis. 1891.

Refraction of the Eye, by A. Stanford Morton, M.B. Fourth edition. London: H. K. Lewis. 1891.

Inherited Consumption, by William Dale, M.D. London: H. K. Lewis. 1891.

The Pathology and Prevention of Influenza, by Julius Althaus, M.D. London: Longmans & Co. 1891.

Ambulance Handbook on the Principles of First Aid to the Injured, by George T. Beatson, B.A., M.D. Glasgow: St. Andrew's Ambulance Association. 1891.

Surgical Diseases of the Ovaries and Fallopian Tubes, including Tubal Pregnancy, by J. Bland Sutton, F.R.C.S. With 119 Engravings and 5 Coloured Plates. London, Paris, and Melbourne: Cassell & Co. 1891.

Handbook of Materia Medica, Pharmacy, and Therapeutics, by Sam'l O. L. Potter, A.M., M.D. Third edition, revised. Philadelphia: P. Blakiston, Sons, & Co. 1891.

Age of the Domestic Animals: a Treatise on the Dentition of the Horse, Ox, Sheep, Hog, and Dog, by Rush Stephen Hindekopen, M.D. With 200 Engravings. Philadelphia and London: F. A. Davis. 1891.

The Anatomical and Histological Dissection of the Human Ear in Normal and Diseased Conditions, by Dr. Adam Politzer, translated by George Stone. With 104 Illustrations and 1 Plate. London: Baillière, Tindall & Cox. 1892.

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GLASGOW MEDICAL JOURNAL.

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ORIGINAL ARTICLES.

THE RELATIONS OF OPHTHALMOLOGY TO
MEDICINE AND SURGERY.

By FREELAND FERGUS, M.B.,

Surgeon to the Glasgow Eye Infirmary ; Lecturer on Ophthalmology.

Being his Thesis for the Degree of M.D. in the University of Glasgow.

WHILE a student of medicine some ten years ago, we remember, amongst many memorable sayings from Professor Gairdner, words to the effect that the ophthalmoscope promised to do for diseases of the brain and of the nervous system much the same work as the stethoscope had, in the hands of Lænnec, done for diseases of the chest. With his usual candour, the Professor told us that he himself was not an expert ophthalmoscopist, but his remark was more than justified by the attitude which, at that time, pervaded the tone of certain writers in the medical world—which, indeed, had pervaded it ever since the publication of Bouchut's¹ celebrated work.* The position which we held as oculist to the Royal Infirmary, for a period of four or five years, afforded us a good opportunity of seeing many interesting cases in the medical wards of that Institution.

* The small figures in the text refer to the bibliography, which will be given at the end of the paper.

The labours of many observers in this and other lands, more especially those of Clifford Allbutt and of Gowers, have gone far to show that the high expectations shadowed forth in the Professor's remark have not altogether been quite fulfilled. Still, without doubt, a careful examination of the eye by a competent observer affords information of the greatest possible importance to the physician, and just as no physician should undertake the practice of his profession without a stethoscope and a clinical thermometer, so no one dealing with the diseases of the nervous system or the surgery of the brain is at all well equipped unless he possesses a somewhat accurate knowledge of the use of the ophthalmoscope, and of the other methods of the examination of the eye, more especially such methods as are used for the examination of diplopia, be it manifest or latent. Again, many constitutional states, such as syphilis, write themselves in such indelible characters on the structures of the eye as to afford evidence of the most important kind in the diagnosis of the condition.

It is our intention to sum up in the few following pages the various points which are of importance to all practising physicians, adding at the end some remarks on the testing of the light sense, a factor which, we believe, has not clinically received the attention which it merits.

In the examination of the eye we receive information :—

1. From a consideration of the movements of the eyes, either separately or together.
2. From the movements of the pupil.
3. From the examination of the visual acuteness.
4. From the ophthalmoscope with the information which it affords us on the condition of the retina, choroid, and the optic nerve.
5. From an examination of the light and colour sense.

Little skill is, as a rule, required to determine a serious ocular paralysis, such as ptosis from paralysis of the levator palpebræ superioris, but considerable skill is sometimes required to determine the nature of the paralysis when only latent and not invariably manifest.

Thus, in the large class of cases known to most ophthalmic surgeons under the name of muscular insufficiencies, even an experienced observer has at times the utmost difficulty in localising which muscle is affected.

The following case, taken from our note book, is one characteristic of this state of matters:—Mrs. W., aged 46, by employment a sick nurse, was to all appearance in perfect

health up till three years ago. At that time she was in attendance for a long period, amounting as nearly as she can remember to about eight months, on a case which required a great deal of night nursing. Her health at that time gave way a little, although it cannot be said that she had any definite well defined illness. Amongst other symptoms she suffered from, and still at times does have, diplopia. The diplopia has this peculiarity, that, when tested at 18 inches from her eyes on the left side, there is a homonymous diplopia, while at the centre and to the right it is crossed. To the outward appearance there is no deficiency whatsoever in the movements of the eyes. There also seems to be inability to relax her accommodation, a fact which may be accounted for by her being emmetropic and never having availed herself of glasses. This latter condition we regard as being functional, due probably to some tonic spasms of the ciliary muscle, and therefore of no great moment. The diplopia, however, is not so easily explained, but there is no doubt of the fact as stated; and yet, to the naked eye observation, there is no deviation whatsoever in the movements of the eyes. Fixation to casual observance seems to be perfect, yet from all we know and believe of the theory of diplopia it cannot be so.

In this particular case we have failed, even after the most painstaking examination, to detect which muscle or muscles are in fault. In the large majority, however, of cases which ordinary observation leaves doubtful, a regular examination will reveal the defective muscle.

We therefore think it right briefly to mention the methods of conducting such examinations.

The testing of diplopia essentially depends upon the theory of identical retinal points, which predicates that an image formed on a particular point of one retina, and an image of the same object on an absolutely symmetrical point of the other retina, are fused into one so that single vision takes place.

Le Conte² thus enunciates the law:—"Objects are seen single when their retinal images fall on corresponding points; if they do not fall on corresponding points their external images are thrown to different places in space."

Figs. 1 and 2 illustrate this theory better than any verbal statement. In Fig. 1 the right eye is shown squinting outwards; the cornea is turned outwards, and therefore the macula is turned inwards. *A* is an object in nature. *M* and *M'* indicate the positions of the maculæ luteæ of the right and left eyes respectively. It will be noticed that the

image of *A* formed on the right eye falls outside of the macula, whilst the image of *A* formed on the left eye is formed on the macula—the two images are not formed on corresponding points, and hence there arises diplopia. The right half of the right retina is associated with impressions coming from the left side of the body, hence the right eye projects the image formed on its retina to the left side, to such a position as *A'*—consequently there is, in this particular

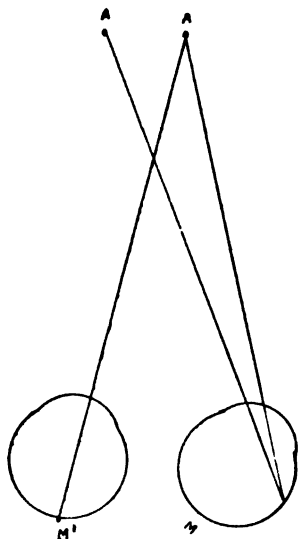


FIG. 1.

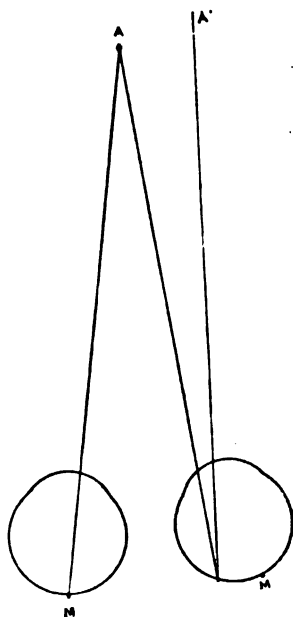


FIG. 2.

case (a divergent strabismus), crossed diplopia. But that the diplopia is of this nature in all cases of divergent strabismus is a matter of easy proof.

Fig. 2 shows that in convergent strabismus the diplopia is homonymous, and it may be said, in general terms, that when diplopia exists in convergent strabismus it is always homonymous.

Recently Osborne³ has recorded a case of convergent squint with crossed diplopia. Such cases are so infrequent that they may be disregarded altogether. Osborne gives no explanation

of his case at all, but there is no doubt of the truth of his observation.

There are certain other factors too which, in the study of the measurements and testing of diplopia, must not be overlooked. In the first place, wherever the vision of both eyes is fairly good, there is a natural tendency to binocular fixation. It is this function which gives us the sense of perspective, or at least one of the most important elements we have in acquiring that sense.

It may be observed in passing that, if we admit, as there seems little doubt we must admit, that the anatomical position of rest is not one of parallel binocular fixation, but some other, either divergent or convergent (see Grut,⁴ also Stilling⁵), then it is this tendency to fusion which gives single vision. Indeed, certain very competent observers attribute strabismus to the absence of this tendency. They say that, given two eyes, the visual acuteness of one of which is so low that it is of no value to the sense of perspective, then the eye naturally assumes the anatomical position of rest and diverges or converges. It seems probable that the anatomical position of rest is not invariably one of convergence or of divergence, but that it varies, being in some individuals convergent, and in others divergent. Hence the disparity in the statements of competent observers.

This is the relationship between squint and amblyopia maintained by Schweigger⁶ in opposition to the views of Donders.⁷ To Donders the amblyopia was caused by the squint; it was to him an amblyopia *ex* anopsia. To Schweigger the amblyopia and the consequent absence of the tendency to fusion are the most important factors in causing strabismus.

To the one amblyopia is the *post hoc*; to the other it is the *propter hoc*.

In this connection, a fact brought before our notice by Professor Cleland in our student days is perhaps worthy of mention. We believe it to be an original observation on his part, and, so far as we are aware, it is not recorded in any of the text-books dealing with this department of physiology. If a piece of cardboard or other article of convenient size, say about a foot long, be held in front of the face, one edge of it resting against the face at right angles to a line joining the two eyes and separating them, and the other edge resting against a horizontal line of printing dividing it into two parts, these two parts do not seem on the same level, but one appears a little higher than the other. This phenomenon also probably

depends on the anatomical position of rest, and would indicate that in ordinary binocular fixation there is probably a readjustment in the vertical as well as in the horizontal direction. It is this tendency to fusion which is one of the great obstacles to be overcome in the testing of diplopia. The nearer the two points on which the images are formed, one on each retina, are to being on identical points, the greater is the tendency to fusion. Hence, given good visual acuteness in both eyes, a patient may at the time of his examination completely mask, by special and momentary nerve effort, a diplopia from which at other times he suffers.

Case of Miss W.—A young lady, aged 15 years, consulted us on account of pain in the eyes. The pain is only severe when she uses her eyes for reading and near work. On examination it is found that she has myopia to 8 D. in each eye, with slight astigmatism. We carefully corrected the error of refraction under atropine, and saw that the glasses were properly centred. These glasses were worn for quite a year without any relief. There were only two other possibilities. The patient suffered from rheumatism of a chronic type; that of itself is sometimes the cause of such pain. On the other hand, we felt inclined to regard it as the expression of an error of convergence. Our chief reason for so doing was that the attacks of pain in the eyes seemed to have no relation to the symptoms of rheumatism. Thus, not unfrequently the pain in the eyes was severe when there was no pain in the joints. Again, any effort of vision always brought on ocular pain. We therefore, on several occasions, tested her with Landolt's ophthalmodynamometer, and each time with a negative result till the fifth. At the time of this examination she had not more than four metric angles of convergence (for metric angle see Nagel in *Gräfe und Semisch Handbuch*). This we corrected with prisms to give her at least ten angles, of course combining the prisms with the required concave and cylindrical glasses. From that time the improvement has been most marked, so that now she admits to being nearly well, and is able to read and write for long periods without great inconvenience.

On the other hand, it is well to remember that several patients, although provided with good visual acuteness in both eyes, seem to have a power, probably a mental one, of suppressing altogether one of the images, and thus seeing only singly where we would expect to find diplopia. Of this not very infrequent condition of matters the case of Miss M. seems to us to be a striking example.

Case of Miss M.—This is a case somewhat similar to that of Miss W. She is the subject of myopic astigmatism in both eyes, which is thoroughly corrected by the glasses she is wearing, and which she has been wearing for some time. In spite of this she suffers very much from headaches. The visual acuteness is about the same in both eyes—viz., $\frac{20}{70}$ for each eye when corrected. The pain is not due to the ametropia, for the glasses supplied corrected that perfectly. A most casual examination served to show that there was great want of power of convergence. We attempted to measure it at 12 inches from her face; but, although at that distance the eyes diverged most markedly, yet the patient was only conscious of one image. It took fully half an hour's work before she became aware of the second image. Yet the visual acuteness was as near as might be the same in both eyes.

Having dwelt on these preliminary matters, we are in a position to describe the methods which we find most useful in detecting diplopia, whether apparent or latent, whether it be due to convergence or divergence, manifest at great distance or close at hand.

We have said that the tendency to fusion often masks the presence of diplopia. This tendency may easily be destroyed by the use of a prism held in front of one eye, with its base in the horizontal direction, either above or below the level of the pupil. This destroys all tendency to horizontal, and to a large extent, vertical fusion.

Let us suppose one eye is furnished with such a prism, with the base in the horizontal direction below the pupil, the patient being placed at a considerable distance, say about 20 feet from a lamp or other bright object. The rays of light coming from that object to the eye are by the prism deviated downwards, and the image is formed on a lower part of that retina than on the other retina, the rays reaching which do not pass through the prism. The first eye, therefore, projects the image upwards, and sees a false image somewhere above the level of the true object in nature. If this false image is directly above the true object, then there is no, or very little, diplopia. If, on the other hand, the false image is not vertically above the true object, but more or less to one side, then there is diplopia. If it is to the same side as the eye provided with a prism, then the diplopia is homonymous; if to the other, then it is crossed. This test dates from the times of Von Græfe, and is still an exceedingly useful one. Maddox⁸ has, however, invented one which we believe to be even more delicate. His method of preventing fusion does not depend

so much on the differences of the retinal levels as on the rendering indistinct one of the images. This he effects by holding a small glass cylinder in front of one eye. When such a cylinder is held horizontally, then a candle or lamp flame seen through it appears not as a distinct object, but as a band of light. If, then, when both eyes are used, one of which is provided with Maddox apparatus, and the other is not interfered with, the patient being made meanwhile to look at a bright light, say 20 feet away, one eye sees the light naturally and in its normal position; the other eye has the impression of a band of light. If this band runs through the centre of the light as seen by the other eye, then there is no diplopia. If the band of light, however, does not intersect the light, but passes to the same side as that on which the apparatus is held, then there is homonymous diplopia; if to the other, there is crossed.

Very often the diplopia is present without either of these tests being used. A piece of deeply coloured glass, say red or blue, will serve to identify to which eye each image belongs, and will thus serve to show whether the diplopia is crossed or homonymous.

Such tests are quite reliable for distances; when properly handled, they may also be used for near at hand. We prefer, however, for near distances, the ophthalmo-dynamometer used by Landolt⁹ for estimating metric angles of convergence.

Again, it must be observed that in testing for diplopia, either near at hand or at a distance, it does not suffice to examine only the median positions, but we must investigate with the light held in every conceivable position, while at the same time the patient's head is either held or kept immovable.

The annexed tables, taken from Landolt, indicate sufficiently clearly the various forms of diplopia and the muscles and nerves affected.

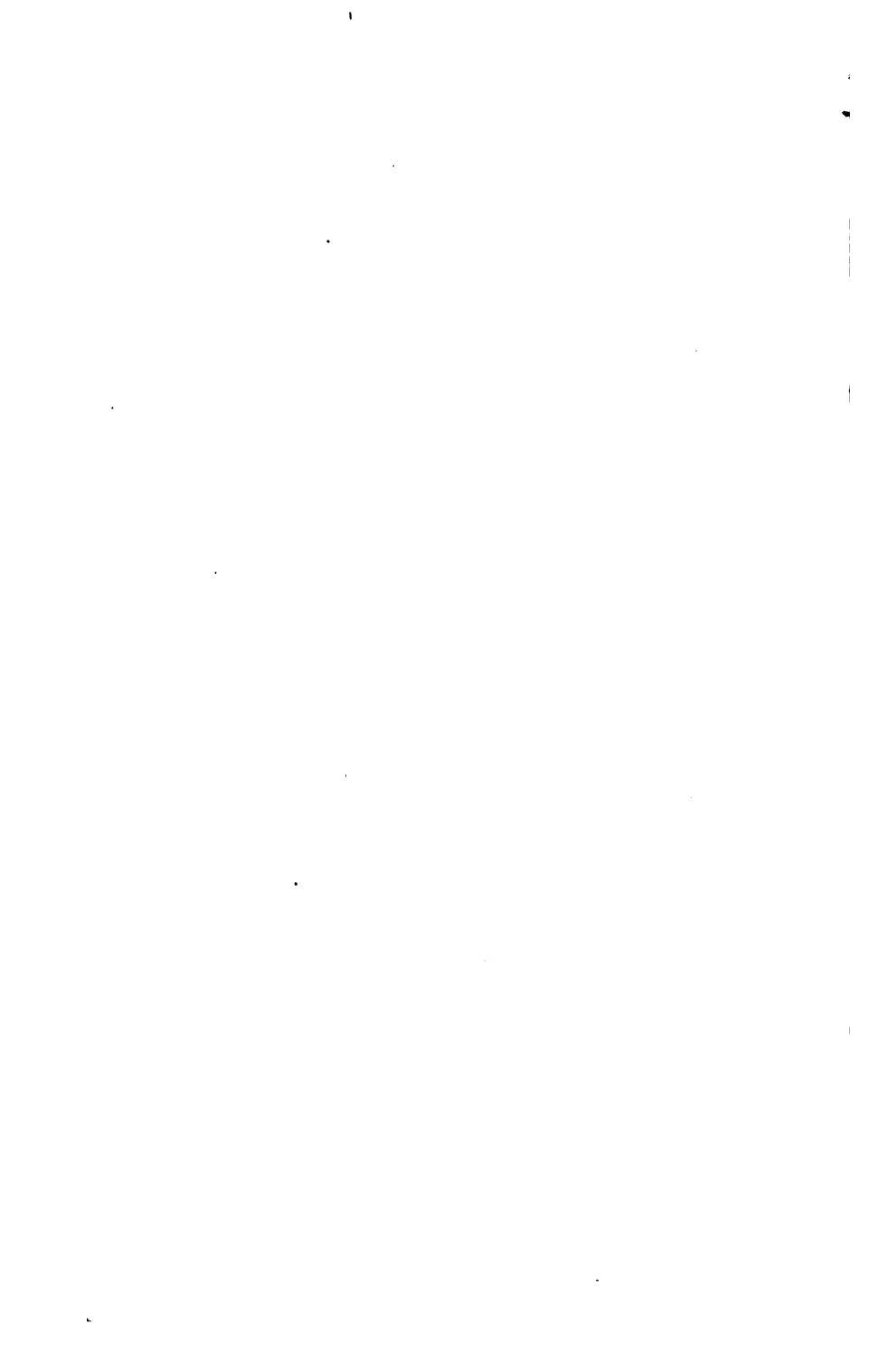
There is one other point of practical importance, and that is, that in certain forms of diplopia the test object seems not vertical, but more or less inclined. The cases in which that occurs may be seen at a glance from the table. Probably the best description of these double images is to be found in Zehender's *Handbuch der Augenheilkunde*. Occasionally the inclination of the patient's head, so as to get monocular fixation, indicates the muscle which is affected. Thus, in paralysis of the right external rectus, with a healthy internal rectus of the same eye, monocular fixation takes place for at least the left half of the field of vision. Only in one other

THEIR DERANGEMENTS.

IS.

is primary position, by a movement either ascensional or lateral, eye around a line of fixation. It is characterised by an inclination sees all the points to which the two eyes can be directed together, determined position of the line of fixation in relation to the head, able value of the angle of torsion.—HELMHOLTZ, *Opt. Phys.*, p. 602. the line of fixation passes from the primary to any other position, his second position, is the same as if the eye had come into it by dicular to the first and second positions of the line of fixation.

	PHYSIOLOGICAL ACTION ON THE DIRECTION OF THE CORNEA.	TORSION AROUND THE LINE OF FIXATION, A A.
form- th the	Outward.	Nil.
	Inward.	Nil.
	Upward and inward.	Superior extremity of ver- tical meridian inward.
	Downward and inward.	Superior extremity of ver- tical outward.
	Downward and outward.	Superior extremity of the vertical meridian in- ward.
form- th the	Upward and outward.	Superior extremity of the vertical meridian out- ward.



circumstance do we have inclination of the head for vision, and that is in some cases of astigmatism. These cases, however, are not, as a rule, a source of confusion. In the example which we have just quoted, of paralysis of the external rectus of the right eye, the patient, in fixing an object attentively, would almost certainly turn his head to the right side. The same thing would happen also in paralysis of the left internal rectus; but the nature of the diplopia, whether homonymous or crossed, would at once reveal whether the lesion was one of convergence, as in paralysis of the external rectus, or of divergence, as in paralysis of the internal rectus.

Another factor which helps us in doubtful cases is the distance between the real and the false images. Thus, for example, in a case of paralysis of the left internal rectus, the lesion would be one of divergence, and consequently the diplopia crossed. If we put the patient at one end of the room and the test light at the other end, and the patient be directed to look straight at it, the head being prevented from moving, he would notice a certain space between the two lights—that is to say, between the false and the true images. If now the light is carried towards the patient's right side, the distance between the false and the true images will increase. The healthy eye follows the light perfectly, but the left cannot do so on account of its internal muscle being paralysed. The same phenomenon would take place were the right external rectus affected, but in that case the diplopia would not be homonymous, but crossed.

We are now in a position to see how far ocular paralysis assists us in localisation, and to consider to what symptoms it may give rise.

The causes of ocular paralysis may be divided into two great classes—(1) those which are in the cranium itself, and (2) those which are in the orbital cavity.

At least four nerves are involved in the various movements of the eyeball and lids—these are the seventh, the third, the fourth, and the sixth. We have undoubtedly another—viz., the cervical sympathetic—concerned in the movements of the pupil. The exact mechanism by which irritation of that nerve, as in aortic aneurysm, effects dilatation is not absolutely determined.¹⁰ The very existence of Henle's muscle is still a doubtful matter. Nor does it at present concern us much; what suffices for our immediate purpose is the fact that irritation of the cervical sympathetic causes dilatation (*mydriasis*), and that paralysis of the oculo-motor may produce dilatation and irritation, contraction (*myosis*).

The phenomena of mydriasis and myosis will be discussed more in detail when we come to speak of the movements of the pupil and of the nerves controlling such movements. It suffices for our present purpose to note that mydriasis may be due to either paralysis of the third nerve or irritation of the cervical sympathetic, and that myosis is caused by paralysis of the cervical sympathetic or irritation of the third nerve. In some cases, be it remarked, myosis seems to be due to congenital conditions. Thus, Mr. B., himself a student of medicine and a most intelligent observer, shows us his pupils contracted almost to a pinhole; in fact, they resemble very closely the condition of the pupils in extreme opium poisoning. The vision is perfect for each eye as tested by Snellen's test types; he does not smoke, nor does he take opium; the range of accommodation is perfect, but the pupils do not respond readily either to variations in illumination or to irritation of the surface of the skin.

Our present inquiry, however, bears more directly on the extrinsic muscles of the eye and of the nerves supplying them. These nerves are liable to pathological processes either at their origin or during their course within the cranium or in the orbit.

Ever since the days of Duchenne, it has been a recognised fact that in certain cases of spinal disease several of the muscles of the eye may be affected. Thus, in locomotor ataxy he observed that in certain cases paralysis of the sixth nerve was of frequent occurrence. More recently, nuclei have been described controlling separately the contractions of each of the muscles of the eyeball. Hensen and Volckers¹¹ are of opinion that the nuclei of origin of the third nerve have different centres, each controlling a separate muscle of the eyeball. These nuclei are for the most part in the floor of the third ventricle. Hensen and Volckers describe these nuclei as being in the aqueduct of Sylvius. Pick and Starr both agree that they are in the floor of the third ventricle. The anterior of these acts on the muscle of accommodation. Next in order is that for the constrictor fibres of the iris.

Behind these lie nuclei for the rectus internus, the rectus inferior, the levator palpebræ superioris, the rectus superior, and the obliquus inferior (see Starr, *Journal of Nervous and Mental Disease*, 1888). The nucleus of the sixth nerve is not on the floor of the third ventricle, but on that of the fourth. A few fibres from this latter nucleus are sent to the nucleus of the internal rectus of the opposite side. Thus the synchronous movements of the eyes from side to side is

accounted for. The nuclei of the fourth nerve are situated just behind those of the third nerve (see Ferrier and Gowers; also Mauthner, *Die Ursächlichen Momente der Augenmuskellahmungen*.) It must also be remembered that the optic nerve sends fibres to the muscle controlling the movements of the pupil. Special centres are also described as controlling the function of convergence. As to the nerve arrangements of the pupil we shall have again to speak in greater detail.

Paralysis of the muscles of the eye may then depend on nuclear lesions, or on lesions in the course of the nerve, which may be either basal or orbital. Isolated nuclear lesions are exceedingly common in various diseases of the spinal cord, such as locomotor ataxy and disseminated sclerosis. Examples of these lesions are so common that it is almost superfluous to quote cases. Still, the following case, as recorded by Zimmermann, is worthy of notice, for in this case a nuclear paralysis enabled him, and, we think, correctly, to differentiate between spastic paralysis and disseminated sclerosis:—A young man consulted him for diplopia. On examination it was found that the diplopia was due to paralysis of the internal rectus muscle of one eye. From this condition he at the time recovered, but it was noticed that both optic nerves were atrophic in the outer parts. The function of the optic nerves seems to have been but little, if at all, disturbed, a circumstance which may be accounted for by the fact that while the sheath of the nerve fibre undergoes degeneration in these cases, the axis-cylinder remains intact. This corresponds somewhat closely to the condition of atrophy which, so far as we are aware, was first described by Charles Abadie in a memoir published some years ago. There he divides atrophies into two great classes, which he designates by the names of interstitial and parenchymatous. Gowers objects to Abadie's classification; still, clinically, it is one of considerable value. In an interstitial atrophy the function of vision, more especially as regards visual acuteness, is not necessarily much involved, unless, indeed, it is that form of atrophy secondary to plastic effusion, which, by cicatricial contraction, disturbs the functions of the parenchyma. Zimmermann's patient at the time recovered from the diplopia, but three or four years afterwards was sent by his family physician to have his eyes examined on account of motor disturbances, closely resembling spastic paraplegia, but with some complications which led to the diagnosis of disseminated sclerosis. The most important of these complications were atrophy of parts of both optic nerves; the sudden onset of amblyopia (in one eye), and

the speedy recovery of sight; the lasting ophthalmoscopic appearance of atrophy, with amelioration of vision to its normal acuteness, and the discrepancy between the ophthalmoscopic condition and the perfect performance of the function of the optic nerves; its early appearance before any other symptom could be observed.

The patient died from other causes, and patches of sclerosis were found in three situations—viz., two in the spinal cord, and one in the optic nerve and tracts. Our author lays special stress on the paralysis of the right internal muscle, as being one of the early symptoms, and believes this paralysis to have been due to the formation of a sclerotic patch at the nucleus for the internal rectus. The case is described in Knapp's *Archiv.* for the present year.

It is needless to multiply cases; we shall therefore content ourselves by a quotation from Duchenne:¹²—"Paralysis of one of the motor nerves of the eye is usually one of the first signs of progressive locomotor ataxy. It was only wanting in three out of the first twenty cases which I collected. I noted in these cases that the sixth nerve was more often affected than the third, though now, having seen some hundreds of cases, I should say that the third is more often attacked at the onset than the sixth. Three times I noticed that double paralysis of the sixth, but in all the other cases the paralysis, whether of the sixth or third, were on one side only."

Again, he says—"The paralysis of the muscles of the eye which appear in the first stage of locomotor ataxy are either permanent or temporary, and even intermittent or remittent, and last several months. I have not met with these kinds of repeated paralyses of the motor nerves of the eye except in locomotor ataxy, and they must therefore be considered as signs of great value in this disease."¹³

It is well to remember also that a different nucleus has to do with the contraction of the pupil to accommodation from that which has to do with the contraction of the pupil to light. The stimuli which cause contraction to light are brought to the brain by the optic nerve, and doubtless the fibres which we have seen coming from the optic nerve to the nucleus in the third ventricle, play an important rôle in this respect. Thus, in a case of atrophy of both optic nerves we generally find, if the condition is so great as to produce blindness, that the irides are dilated, and do not respond to the impressions of light. If one optic nerve, however, is healthy, but the other so atrophied as to produce blindness,

stimulation of the healthy eye by light produces contraction of both pupils, but that of the sound eye contracts more fully than the other.

The following case, taken from our own note book, seems to us illustrative of this form of dilatation :—

J. D., a girl aged 11, received a blow, when 3 years of age, by falling down a staircase on her head. There is a well marked depressed fracture over the left orbit, which was probably the result of the blow, as there is nothing else in her whole history to account for it. At present the pupils are both widely dilated, and do not contract to the stimulus of light. Both optic nerves are in extreme atrophy, but she has a certain amount of sight, although very little. It is noticed that the internal recti muscles are both deficient in power, and the grasp of the right hand is less than that of the left. So far as can be got from the statements of her parents, there have been no convulsive seizures or twitchings. The patient's mother believes that the dimness of vision first came on very shortly after the fall. There is one element, however, of confusion, for, on further questioning, we ascertain that when the patient was 5 years old she had a severe illness. Of that illness all that we can ascertain is as follows :—The medical gentleman who was attending the case called it scarlet fever; there was, however, no eruption, or at least none that the mother could see. She was ill for a fortnight, and then was so far better as to be out. This was followed by a relapse, which confined the patient to bed for eight weeks. Of the nature of this relapse we are unable to get any very definite information; suffice it to say that there was no swelling of the feet or legs or eyelids such as to suggest acute tubule nephritis. It is further to be noticed that during the first illness desquamation was only doubtfully present. Of late the patient has become emotional and restless, always keeping moving about, and it is specially noticed by her mother that her hands are seldom at rest. In the main, we are inclined very seriously to doubt the diagnosis of scarlet fever. We think that the whole features of the illness as described to us, especially when taken in conjunction with the patient's present condition, point rather to its having been some inflammatory affection either of the brain itself or of the meninges. This is certain, that the dimness of vision, if it existed at all before, became much worse during the course of this illness, and the dilatation of the pupils occurred shortly afterwards. The form of atrophy of the optic nerves is such as clearly to suggest a previous acute papillitis. The

other muscles supplied by the third nerves seem to have perfect action; only the internal recti are weak, but still they have a fair range of power. Hence we think the immobility of the pupils to the stimulus of light can only be accounted for by the intense atrophic condition of the optic nerves.

On this double centre for the movements of the iris depend also the phenomena of the Argyll-Robertson pupil, in which we have contraction to the stimulus of convergence and accommodation, but not to that of light.

It is not always possible to differentiate between cases of oculo-motor paralysis which are basal and those which are nuclear. Important information, however, is often obtained from collateral circumstances; as several nerves are involved, we are not surprised to find very varied disturbances. As a broad general principle, however, it may be said that isolated and recurrent paralyses are of nuclear origin. These, for the most part, as we have already seen, are associated with spinal disease; they ought, however, to be looked upon rather as concomitants than as consequences. According to Gowers (*Medical Times and Gazette*, June, 1883) such paralyses are to be regarded as associations and not effects of the spinal lesion. From what has already been said, it will be gathered that these isolated paralyses are insidious and slow in their development. Still, it is not impossible to have them running a more rapid course, as in inflammation of the grey matter of the third and fourth ventricles. Mr. Jonathan Hutchinson (*Med. Chir. Trans.*) divides such cases into two important groups—viz., ophthalmoplegia externa and ophthalmoplegia interna. In the first are included affections involving the whole of the extrinsic muscles of the eye; in the latter we have to deal with paralysis of the muscle of accommodation and of the constrictor fibres of the iris. The division is a convenient one from a clinical standpoint; but, generally speaking, we find the two forms of paralysis more or less intermingled.

When the lesion is basal, we generally find some other nerve or nerves also involved. Moreover, it must be remembered that the third, fourth, and sixth nerves are in close proximity to each other in the cavernous sinus. The third nerves emerge from the brain close to the upper margins of the pons, while the sixth come from behind the pons. The fourth nerves also emerge from close in front of the pons, but much external to the place from which the third nerve of the same side emerges. So long as a paralysis is confined to one nerve, the likelihood

is that we have to do with a nuclear affection. If, however, the lesion is of such a nature as to involve several nerves, it is then almost certain that the condition is basal. The presence of optic neuritis is in the main against the theory of a nuclear lesion. Still, it must not be forgotten that inflammation of the optic nerve may also exist at the same time as a nuclear lesion, the two conditions being related to each other, not as cause and effect, but possibly due to a similar pathological process affecting different parts of the encephalon. Another circumstance which must be remembered is the close proximity of the optic chiasma to the third ventricle. Hence any pressure in the third ventricle or inflammatory process may affect the optic chiasma, causing possibly papillitis, atrophy, or hemianopia—the latter due to interference with the conduction from the internal half of each retina. We shall revert to this subject when we come to speak of diseased conditions of the optic nerve, and consequently of the field of vision, which are of importance to the physician.

ETIOLOGY.

The causes of oculo-motor paralysis are very varied, and include such conditions as syphilis, tuberculosis, tumour, hæmorrhages, meningitis, aneurysms. We have it also in certain forms of poisoning, such as after diphtheria. In this case the most common occurrence is ophthalmoplegia interna, but not infrequently we find other muscles involved. Thus, Mrs. H., aged 42, has almost complete ophthalmoplegia interna and partial ophthalmoplegia externa of both eyes. She has recently recovered from a severe attack of diphtheria. Both pupils are widely dilated, and, so far as can be ascertained, her near point of distinct vision is about $2\frac{1}{2}$ to 3 feet. She also suffers from diplopia, which is crossed and evidently due to a want of power of convergence. In her case there is no question as to the use of atropine or belladonna; the most searching inquiry fails to detect any use of these or similar drugs either furtively or by prescription. Paralysis of this nature is also said by Noyes¹⁴ to occur in diabetes mellitus and from nicotine and lead-poisoning. We have not had an opportunity of seeing such conditions.

Paralysis of orbital origin is, as a rule, more easily and more certainly recognised. We very often have pain on pressure, and there is not infrequently some local manifestation of disease, which may be ascertained either by inspection or by thorough digital examination of the orbit. Wounds

and injuries are amongst the most frequent causes, while the affection is often due to the formation of an abscess or the growth of a tumour. Sometimes it may also be attributed to acute orbital periostitis. In cases of abscess, tumour, and periostitis, the impairment of movement may be due, not to paralysis, but to a mechanical hindrance. In this class of cases we sometimes have protrusion, more or less marked, of the eyeball, and occasionally the differential diagnosis between these two conditions is by no means clear. In one case, which we well remember having seen in Dr. Meyer's clinic, the protrusion and impairment of movement were due to the formation of a hydatid cyst at the outer aspect of the left orbit. This cyst presented all the characters of an abscess, which, on being opened, gave vent to a fluid which certainly was not pus. The microscope, however, at once cleared the diagnosis.

The following case seems to us of interest in this connection:—J. B., a girl, aged about 13, was suddenly seized with a rigor accompanied with high temperature and protrusion of the right eye. On examining the patient, along with her own medical attendant, we found that she had for some days previously suffered from neuralgia of the same side of the face, which she attributed, and we believe correctly, to caries of an upper molar tooth. The protrusion was considerable, and the eyeball was displaced downwards and slightly outwards.

We ascertained from him that the tooth had been removed two days or so before the onset of the acute symptoms. This was not accompanied with any relief to the pain, which, on the contrary, increased in violence. The child seemed excited, but beyond that there was nothing remarkable in her mental condition. On careful palpation, we discovered a localised swelling at the upper and inner part of the orbit. Our opinion was that we were dealing with an acute periostitis in that situation, an opinion which events proved to be correct. Next morning the child was put under chloroform, and we made an incision into the swelling between the upper eyelid and the eyeball, but did not succeed in evacuating any pus. Probably our incision was not sufficiently deep. The eye was very carefully dressed with iodoform and sublimated gamgee. On the following morning we found an abscess pointing through the eyelid, at its inner aspect, which was very easily opened. On introducing a probe into the wound, we discovered that a large part of the orbital plate of the frontal bone was devoid of periosteum, but there was nothing to lead us to

suppose that there was any necrosis of the bone. The most rigid aseptic precautions were taken; the wound healed quietly, without leaving a sinus, and the eyeball receded to its normal position. This child recovered perfectly, with almost normal vision. Mr. Snell has recorded two somewhat similar cases in the *Transactions of the Ophthalmological Society of the United Kingdom*.¹⁵ Our belief is that the formation of that abscess, with the accompanying orbital cellulitis, was due to a secondary infection, either from the caries condition of the tooth, or from the state of the instrument used for its extraction.

EFFUSIONS OF BLOOD INTO THE EYELIDS.

This is at times a condition of serious importance to the physician, as not infrequently it is the outward manifestation of fracture of the orbital walls, more especially of fracture of the orbital plate of the frontal bone. Lucas (*Guy's Hospital Reports*, vol. xix, 1874) says that a hæmorrhage, appearing first in the cellular tissue of the orbit under the ocular conjunctiva, then extending to the lids, is exceedingly characteristic of such fracture. The clinical history of the case helps in the diagnosis. Thus, given a sufficiently severe injury to produce fracture, and this form of ecchymosis, the diagnosis is all but certain. (See also Maslieurat Lagemard, *Archiv. de Medicine*, 1841.) According to this author, when there is fracture of the base of the skull with infiltration of blood into the orbital cavity, the ecchymosis first appears under the ocular conjunctiva, and spreads to the eyelids. Often we see a somewhat similar effusion from mere local injury; this has been described as frequently occurring after pugilistic encounters. Where there is protrusion of the eye, and certainly if there is coma, the injury is not likely to be merely local.

Sometimes we have sub-conjunctival hæmorrhage from fits of coughing, as in whooping-cough, and even in bronchitis, while occasionally it is a symptom of, and directly proceeds from, a diseased condition of the vessels.

Wecker (Wecker and Landolt, vol. i) describes certain curious cases of hæmorrhage in the eyelids of one eye on the enucleation of the other eye. Of these he gives no explanation whatsoever, and as apparently a somewhat similar case has occurred under our own observation, we think a short note of it not out of place. Our patient was a man past middle life, who had his right eye so severely injured that

there was no reasonable doubt of the propriety of removing it. Accordingly, he was put under chloroform and the operation easily performed in the usual manner. As soon as the wounded eyeball was withdrawn the whole of the orbital tissues became engorged with blood, and there was profuse hæmorrhage; there was no distinct arterial spouting, but very free oozing. With some difficulty we got the hæmorrhage arrested by means of plugging the orbit with aseptic compresses, and by the application of ice. Next morning, on visiting our patient we were much surprised to find considerable infiltration of blood into the upper eyelid of the other eye. There was certainly nothing in the operation, or in the application of the bandage to cause such an occurrence, and we could not resist the idea, in view of the severe hæmorrhage at the time of operation, and of subsequent events, that our patient might be the subject of the hæmorrhagic diathesis. Strict inquiry, however, did not reveal anything confirmatory of such a suspicion.

EXAMINATION OF THE PUPILS.

The best account with which we are acquainted of the various conditions of disease which have an effect on the pupils is the monograph of Dr. William Macewen, published in the *International Journal of Medical Sciences*, in the year 1887. We think it right to acknowledge at once that in what follows we have laid Dr. Macewen's publication under very considerable contribution. The physician may get a great deal of important information from Dr. Finlayson's *Manual*, and from Mr. Swanzy's *Text-book of Diseases of Eye*. Ferrier's *Functions of the Brain* (edition 1886) contains, at pages 79 and 102, information as to the nerve supply controlling the movements of the iris. From the latter we make the following quotation:—

“A centre is usually described as existing in the lower cervical and upper dorsal region of the spinal cord, from which originate the fibres of the cervical sympathetic, which cause dilatation of the pupil—the cilio-spinal centre (Budge and Waller). Certain experiments which I have made on monkeys in reference to this point have shown, with great definiteness, that there is only one spinal nerve which has this effect—viz., the second dorsal. Stimulation of the anterior root of the second dorsal, after division of the posterior root, causes dilatation of the pupil on the same side. Stimulation of the dorsal roots below this as far as the eighth, and of the

first dorsal and lower cervical, causes no such action. It is possible that the position of the dilator fibres may be different in other animals, but there is every reason for regarding the results obtained in monkeys as directly applying to man.

"There may also be other dilating fibres of the iris besides those of the second dorsal. Bulogh holds that dilator fibres of the iris spring from a centre in the medulla oblongata, probably coinciding with the origin of the trigeminus, and proceed to the iris in the first or ophthalmic division of this nerve.

"But whether this be so or not, there is the best evidence that the pupil can be made to dilate by irritation of the cephalic end of the divided cervical sympathetic, and these fibres are derived in the monkey from the second dorsal nerve.

"But it does not follow that the centre which presides over the dilatation of the pupil is itself situated in the upper dorsal region of the cord, for the nerves which pass out by the second dorsal may have their origin higher up; and that such is the case is, on other grounds, highly probable."

In a note to page 101, he gives a very ingenious explanation of the reason of the cilio-spinal centre being at such a distance from the encephalon. We quote his words in full:—

"The vasomotor nerves of the head and the dilator nerves of the pupils seem at first sight to pursue an unnecessarily roundabout path. Having their centres in the medulla oblongata, why, one asks, should they go all the way down to the upper dorsal region of the cord before emerging to join the sympathetic, seeing that anatomically they might reach their destination in a more direct manner?

"The explanation of this fact is, without doubt, to be sought for in embryology. I had, on purely physiological grounds, formed the speculation that the medulla oblongata should, as regards all organic functions, be looked upon as the direct continuation of the dorsal spinal cord, the cervical region being merely intercalated for the innervation of the upper extremities and their related parts.

"My friend Professor Kitchen Parker, to whom I referred on this point, kindly pointed out to me facts of development which seem to me entirely in harmony with the speculations I had formed.

"Thus, in the embryo of all animals, the heart is at first in close relation with the head and the cerebral vesicles, but, ultimately, as development proceeds, comes to lie at some distance posteriorly. The distance is extremely variable in

different classes of animals, and depends on the number of cervical segments which are developed.

"In osseous fishes, in which the cervical region is absent, the heart is in the closest relation with the head, and the first spinal (Owen, *Comp. Anat. of Vert.*, vol. i, p. 307) nerve, succeeding the vagus, communicates with the second, and supplies, among others, the muscles of the pectoral fin, which is the homologue of the hand or arm in man.

"Therefore the region of the spinal cord, which, as regards function at least, corresponds to the lower cervical or upper two dorsal segments in the monkey, comes in the fish immediately after the origin of the vagus.

"In the myxine or hag, however, the heart is situated a very considerable distance posterior to the head—below the fortieth segment. This has been conditioned by the development of a large number of segments for the innervation of the powerful musculature of the upper part of the body. There is every reason for believing, however, that in the embryo hag the heart first occupies the same position in relation to the head that it does in other embryos.

"As, therefore, the vagus elongates in proportion to the distance of the heart and viscera from the medulla oblongata, so also the spinal tracts which connect the vasomotor centre of the medulla oblongata with the vessels of the head and face, originally short and direct, become elongated by the intercalation of the cervical segments which are developed for the innervation of the upper extremities and their annexes. Hence they ultimately emerge by the anterior roots of the upper dorsal nerves, and reascend in the cervical sympathetic to reach their destination."

(*To be continued.*)

SUPPURATION IN THE ANTRUM OF HIGHMORE.*

By A. BROWN KELLY, B. Sc., M.B.

SUPPURATION in the antrum of Highmore, or empyema of the antrum, as it is commonly termed, has been much studied and discussed during the last five years, especially by those devoting attention to affections of the nose. Not till 1886 was it shown that this disease might manifest itself in a manner very

* Read at a meeting of the Glasgow Southern Medical Society on 3rd December, 1891.

different to what had hitherto been described, and that, instead of expecting the recognised or so-called classical signs to be always present, we must form a diagnosis in the majority of cases from a few obscure symptoms. That this disease is not rare, and that it has received insufficient attention in this country, are facts, the former of which I trust to prove in the course of this paper, while in support of the latter I shall merely adduce extracts from two letters which recently appeared in the *Lancet*. On 14th February of this year Mr. Henry Sewill writes, "Not only is our knowledge of empyema of the antrum far from complete, but the existence of such a disease seems by no means sufficiently well known." On 21st February, Dr. Greville Macdonald, replying, writes, "I fully agree with him that the affection is often overlooked, and that not only by general practitioners, but by surgeons and specialists."

In this paper I propose to contrast the two aspects under which empyema of the antrum may appear, and then to sketch briefly the symptoms, diagnosis, and treatment of the more obscure form.

If we consult any surgical work, with the exception of a few of those most recently published, we find empyema of the antrum described as an affection which presents the following as its most striking features:—Pain in the infra-orbital region, with inflammatory swelling of the soft parts, distension of the antrum manifested by bulging of one or more of its walls, and perhaps a purulent nasal discharge when the patient lies on the healthy side. If the disease go on unchecked, it may lead to exophthalmus, nasal obstruction on the same side, convexity of the corresponding half of the hard palate, and on examination, fluctuation and crackling of the anterior wall may be detected; ultimately the contained fluid may force an exit, and a fistula be established.

The natural opening between the nose and the antrum, under normal conditions, allows of the passage of air and of fluids—at least in small streams—from the one to the other. If, however, all communication between them be interrupted, and suppuration going on within the antrum, the pus will be retained. If the suppuration persist, the pressure caused by the gradual accumulation of the pus will be marked by the signs I have just mentioned.

This, then, was supposed to be the only course an antral suppuration could take, when, in 1886, Ziem* published an important paper on the subject, and showed that if the

* *Monatsschrift f. Ohrenheilkunde*, Nos. 2, 3, 4, 1886.

natural opening of the antrum be free, a suppuration may be going on within the cavity unaccompanied by a single one of these recognised signs.

A patient suffering from that variety of antral suppuration described by Ziem, may seek relief from either a doctor or a dentist, according to the most distressing symptom. If he consult a doctor, it is usually on account of a unilateral, purulent, nasal discharge. On questioning him, the other discoverable symptoms are probably frontal headache, loss of appetite, and impairment of the general health. In most cases a history may be obtained of an affection of the first or second molar tooth, or of one of the bicusps of the corresponding side of the upper jaw. On the other hand, toothache may be so severe as to make all the other symptoms appear trivial in comparison, and the patient at once seeks the assistance of the dentist.

Although etiologically these two forms of antral affection are, as far as we know, the same, still they differ so much in their course and results, that it would be well to have distinguishing terms for them. I shall therefore confine the name, empyema of the antrum, to that variety which originally was so designated, and which may be described aphoristically as pus in a closed cavity. To the more recently discovered form, in which there may be said to be a pus-containing cavity with a free exit, I shall apply the term, suppuration in the antrum.

While empyema is a rare affection, and fraught with danger of facial disfigurement, and even of death (Heath),* suppuration in the antrum with free escape of pus is by no means uncommon, and although not menacing life, still, by the discharge—which may persist for years—of foul-smelling pus, the patient's existence is rendered miserable and his health enfeebled.

In this connection I cannot do better than refer to Ziem's own illness, which he describes in his paper. In 1877 he commenced to suffer from a foetid, unilateral, nasal discharge. Various remedies were applied to the nasal mucous membrane, but these, as well as internal medication and a stay of two years in Egypt, failed to produce any improvement. In 1883 the discharge became so profuse, and the stench so marked, that the necessity of giving up his practice became more and more urgent. He now decided to have the antrum opened as the first step in a thorough search for the source of the suppuration. The doctor whom he requested to perform the operation

* *Injuries and Diseases of the Jaws* (third edition, 1884), p. 164.

was very unwilling to undertake it because none of the recognised signs of empyema were present. When, however, the cavity was opened and washed out, a large quantity of pus came away. Finally, a complete cure was obtained.

Having contrasted the two forms of antral affection, I shall now confine myself to the discussion of suppuration in the antrum.

Ziem's paper gave a great impetus to the study of this disease, and in consequence numerous articles have been published on the subject during the last five years. For these, and for the chief advances in diagnosis and treatment, we are indebted almost entirely to the continental, especially the German, rhinologists. The question to a large extent has been neglected at home. This seems all the more strange when we reflect that what is known about empyema of the antrum is largely due to British surgeons, and that the names of Highmore,* Cooper, Hunter,† and Gooch‡ must always be associated with the disease.

ETIOLOGY AND PATHOLOGY.

The origin of suppuration in the antrum can occasionally be traced to a nasal catarrh. In such cases the inflammatory process probably extends through the opening into the cavity, where, as a result, an increased secretion takes place. Owing to the orifice being at the upper part of the cavity, fluid accumulating within can only escape when its surface reaches this height, or a foramen accessorium—if such be present, or when the position of the patient's head is such that the orifice is at a lower level than the cavity. It sometimes happens, however, that the opening being small, it becomes completely closed by the surrounding swollen mucous membrane. If this take place, and if the contents continue to increase and are unable to find an exit, the signs of empyema are gradually developed. In any case the retained secretion in the course of time undergoes putrefaction, and contact with it causes still further irritation of the mucous membrane, so that ultimately a "pyogenic membrane" is formed. Under such conditions, although the contents be evacuated and the cavity thoroughly washed out, pus will continue to be formed.

* Highmore was the first to describe a case of empyema of the antrum. He was not the discoverer of the cavity.—*Corporis Humani Disquisitio Anatomica* (1651), p. 226.

† *Practical Treatise on the Diseases of the Teeth* (1778), p. 45.

‡ *Chirurgical Works* (1792), vol. iii, p. 161.

The normal secretion of the lining membrane of the antrum may be bottled up, undergo retrograde changes, and the same vicious cycle be established as above described, if from any other cause, *e.g.*, polypus or hypertrophy of the middle turbinate, the opening be closed and the respiratory current prevented from passing in and out, and removing the moisture as it is secreted.

A few cases* have been reported in which pus in the ethmoidal cells passed along a pathway, either normally present or formed by the breaking down of intervening partitions, into the antrum. Thence it escaped by the antral orifice, thus simulating an antral suppuration.

Analogous cases doubtless occur in connection with the frontal sinus.

Perhaps the most frequent cause of suppuration in the antrum is dental disease. If we examine the antrum in a number of anatomical specimens, we find the floor occasionally presenting rounded elevations. These correspond to the roots of the teeth—usually the first or second molar, or second bicuspid. In such cases the bone covering the fangs may be very thin, or even absent, so that the tooth is separated from the antrum by periosteum and mucous membrane only. Disease attacking a tooth so situated would be almost certain to induce pathological changes in the neighbouring lining membrane.

As rare causes of suppuration in the antrum may be mentioned: blows on the cheek, the stump of a tooth being forced into the cavity during attempt at its extraction, introduction of foreign bodies by violence or after extraction, section of the infra-orbital nerve by Malgaigne's method (Langenbeck),† pressure on the face of an infant during parturition (Rees,‡ Spencer Watson§).

SYMPTOMS.

The patient may complain of only a single symptom—viz., a purulent discharge from one nostril. Occasionally there is suppuration in both antra, and then naturally there is a discharge from both sides. Under ordinary circumstances, however, when one antrum is affected the flow is unilateral,

* Macdonald, *Treatise on Diseases of the Nose*, p. 168; and "On Cyst and Abscess of the Middle Turbinate Bone," *Lancet*, 20th June, 1891.

† *Arch. f. Klin. Chirurg.*, Bd. xi, 1869, p. 127.

‡ *Medical Times and Gazette*, N.S., vol. iv, p. 860.

§ *Diseases of the Nose* (1890), p. 164.

unless it be abundant and pass round the posterior edge of the septum into the other nasal cavity.

As a rule, the pus escapes anteriorly ; it may, however, pass backwards into the throat, and give rise to a disagreeable taste, and in the course of time to loss of appetite and digestive derangements.

The flow is intermittent, and its onset may be sudden and unaccountable. Often this is determined by the patient assuming a position which favours the escape of the pus—*e. g.*, holding the head low, or lying on the side opposite to that diseased.

The pus may be odourless or it may have a strong smell, which has been compared to that of stinking herring. If it be of this character, the patient will perceive it when the discharge passes from the antrum into the nose. To a bystander, the smell is not apparent unless he inhale the air as it issues from the patient's nose. Herein the disease presents a striking contrast to ozæna, in which the patient, having lost the sense of smell, has no idea of the horrible stench proceeding from his nose.

The symptom next, in point of frequency, is probably headache. This is usually described as a dull pain or as a feeling of pressure, and is referred to the supra-orbital region on the same side. In a number of cases this pain has a peculiar periodicity. It is present when the patient gets up in the morning, increases till the forenoon, and then gradually dies away during the remainder of the day. When this symptom is taken in conjunction with the purulent discharge from the nose, one not unnaturally suspects a suppuration in the frontal sinus. Such an affection may possibly co-exist, but it is more probable that the pain located over this cavity is due to a closure of the passage leading from it into the nose, by a swollen condition of the lining mucous membrane. As a consequence, the air within the cavity is shut up and ultimately absorbed (Killian*). This theory is supported by the fact that the headache is often dispelled by the use of Politzer's air douche.

Occasionally mention is made of some present or past dental trouble on the corresponding side of the upper jaw, which the patient associates with the onset of the antral disease.

On making an examination of the nasal cavity on the affected side, pus is usually seen. In order to find its source, the mucous membrane should be cleansed with a spray or other suitable means, and the patient then directed to hold his head

* *Monatsschr. f. Ohrenheilk.* (November 1887), p. 322.

low, and thus allow the contents of the antrum to pass into the nose (Bayer *). This procedure serves also as a means of differentiating antral from frontal sinus suppuration, for if there be fluid in the frontal sinus it will be unable to escape owing to the position of the patient's head. After a short interval the nose is again examined, and in all probability pus is found lying in the middle meatus, where the opening into the antrum is situated (Fränkel †). As to the state of the nasal mucous membrane, in some cases it is congested, or hypertrophied, while in others it is perfectly normal. Occasionally some diseased condition is found which may account for the antral disease or result from it—*e.g.*, polypi, or enlargement, or polypoid degeneration of the middle turbinate (Bayer, ‡ Hartmann §).

From the foregoing brief account of the symptoms, it will be seen that, with the exception of the first—the unilateral discharge of pus from the nose—and the finding of pus in the middle meatus, they are of little assistance in helping us to make a diagnosis.

But even these may be absent, as in the case of a lady who consulted me on account of *something coming into her throat* while singing, so that she required to pause for a moment to clear her voice before being able to proceed. She had noticed this since she had commenced to practise singing, about a year previously. Examination of the upper respiratory tract revealed no condition which could account for the symptom. The only pathological change to which any importance at all could be attached was a small polypoid growth beneath the right middle turbinated body. This I removed. On subsequent occasions I cauterised the lower edge—which had become polypoid—of the right middle turbinated, and snared other two small vegetations, apparently of the same nature as the first, and which successively occupied its original site. In spite of this treatment, which was carried out at intervals during a period of about two months, the symptom of which the patient complained remained unaltered. I had for some time suspected disease in the right antrum, but had never felt justified in aspirating the cavity, because after repeated examinations I had failed to find any trace of pus in the nose, even after the patient had held the head low, or in the nasopharynx. An occasional bad taste in the mouth was the only

* *Deutsch. Med. Wochenschr.*, No. 10, 1889.

† *Berl. Klin. Wochenschr.*, No. 16, 1887.

‡ *Deutsch. Med. Wochenschr.*, No. 10, 1889.

§ *Ibid.*

indication of the presence of a purulent discharge. Nothing unusual had been observed in the character of the nasal secretion blown into the handkerchief, nor had the amount appeared to differ on the two sides. The patient had certainly suffered considerably from frontal headache, but neither this nor the fact that she had been a good deal of late in the dentist's hands was of much assistance in settling the question as to whether or not the antrum was affected. Transillumination—a method of diagnosis which I shall afterwards describe—also proved of but little service, both sides being darker than usual, and about equally so. In order to set at rest the doubt which had arisen, chiefly in consequence of the rapid recurrence of the vegetations in the middle meatus, I aspirated the right antrum by Schmidt's method (*vide infra*), and drew off pus. On washing out the cavity, a comparatively large quantity of thick, clotted, odourless pus was driven through the normal orifice. It is now a week since a passage was made through the alveolar border for the drainage of the antrum, and during that period the headaches have been milder and the bad taste less frequent. I am unable to say whether the "something" in her throat was caused by the purulent discharge itself, or was merely a sensation induced by the long continued trickling of the pus over the mucous membrane of the pharynx.

On the other hand, the symptoms may point so strongly to antral suppuration, that if one trust entirely to the patient's statement, and overlook the objective conditions, he may be easily misled and make an error in diagnosis. I may mention a case brought to me by Mr. W. H. Woodburn bearing on this point. When I saw the patient he had had a discharge of "dirty matter and blood-clots" from the right nostril for a fortnight. The flow was increased by holding the head down, or when lying on the left side. There was slight pain over the right cheek. He had suffered severely from toothache, and Mr. Woodburn, finding the second upper bicuspid on the right side diseased, had extracted it. On making an examination of the nose no pus was seen. A slight ulceration of the cartilaginous septum on both sides accounted for the blood. Transillumination and aspiration of the antrum yielded negative results. I therefore concluded that the case was not one of suppuration, as I at first suspected on hearing the patient's account, but of catarrh in the antrum. The source of irritation—the decayed tooth—having been removed, all the symptoms rapidly subsided.

DIAGNOSIS.

A certain and convenient means of diagnosing antral suppuration still remains a great desideratum. Several methods have been devised, but of these not one is in all cases absolutely trustworthy, and at the same time easy of application.

A very ingenious method is that of transillumination. In a paper published in 1889, Heryng* describes the instrument required and the method of using it. A small incandescent lamp is fixed on the upper surface of a tongue depressor. The room is made perfectly dark. The patient himself holding the instrument, presses down his tongue with it sufficiently to keep the lamp from touching the palate, and then closes his mouth. If the current be now established, and the film rendered incandescent, light shines through certain parts of the face, and produces corresponding areas of redness. Round the mouth and over the cheeks this redness will be seen, but what we have specially to observe is the crescentic tache beneath the eye, which is produced by the light passing through the antrum. The intensity of the redness over this region varies greatly in different individuals. When the antrum is small and the bony walls thick, or when the fleshy parts are dense, the tache will be less marked, and *vice versa*. If both antra be healthy, *ceteris paribus*, the redness should be equal in intensity on both sides, but if one side be dark and the other bright we suspect disease on the dark side. The pathological conditions which may prevent transillumination are—an accumulation of pus, or a solid growth in the cavity, or a thickening of its lining membrane.† If these were the only causes of unilateral darkness, the method of transillumination would deserve the foremost place amongst our diagnostic tests on account of the ease with which it can be applied, and the non-necessity of a special training to interpret the results. Unfortunately, however, it is rendered unreliable because in a small proportion of persons the antra are not symmetrical. On the one side the cavity may be large, with thin walls, while on the other it may be small or almost absent, and the walls very thick. In such a case there would be a corresponding difference in the transillumination on the two sides, and if we had been led to suspect antral disease on

* *Berl. Klin. Wochenschr.*, Nos. 35 and 36, 1889.

† Darkness of the affected side persisting—as it usually does—after the evacuation of the pus is probably due to thickening of the lining membrane.

the side which turned out to be dark, we might proceed to operate if we trusted to this method alone.

Under favourable circumstances the eye itself may be transilluminated, when its movements may be followed by watching the red pupil. While employing this test, I usually ask the patient to close the eyes and tell me whether any redness is then discernible. Frequently nothing is perceived; occasionally, however, it seems as if the interior of one or both eyes were lit up by a dull, red glow. In almost all the cases in which I have found absence of the antral tache on one side—whether from the presence of pus or from other causes—the patient has reported a perception of light on the bright side and an absence of it on the dark.

Distension of the antrum may be caused by pus or growths in the cavity. When due to pus it does not usually reach a great size owing to a fistula forming at a comparatively early stage. On the other hand, when caused by a growth, the distension may become very considerable. Further points of distinction are to be found in the mode of onset and course of the two conditions. In transillumination the surgeon has a convenient means of distinguishing a cyst from a solid growth. In the case of a cyst with serous contents, the thin walls and fluid promote the transmission of the light, whereas a solid growth completely prevents it. To form a diagnosis, and to indicate the treatment necessary, this method is therefore invaluable; for, while cysts in the antrum require merely to be tapped, solid tumours, being usually of a sarcomatous or carcinomatous nature, demand, when suitable for operation, resection of the superior maxilla.

Cases* are on record in which this severe operation has been needlessly performed, owing to a cyst or an empyema having been confounded with a solid growth, and the first case in which this test of transillumination was employed would have added another to the list of mistakes, had the patient not refused to submit to the operation. Thereupon, Voltolini determined to try electrolysis. Before doing so, however, having been engaged for some time with experiments in the transillumination of the larynx, he applied his method to the antrum, and was not a little astonished when the whole tumour appeared transilluminated in the most beautiful manner. In spite of this he thought that he had still to deal with a sarcoma, so he proceeded with the electrolysis. Next morning

* Liston, *Operative Surgery*, p. 302; Heath, *op. cit.*, *Hydrops Antri*, Marchant, *Bull. de la Société Anatomique de Paris*, February, 1889 (Abstract in *Jour. of Laryngol. and Rhinol.*, 1890, p. 164.)

he learned that a great quantity of fluid had escaped through the puncture made by the electrolysis needle, and on examination he found that his supposed tumour was represented by a large cavity.

Another method of diagnosis is that of aspiration of the antrum, introduced by Schmidt* in 1888. The instrument employed is a Pravaz's syringe connected by means of a bayonet joint with a strong cannula, which is bent like a Eustachian catheter, and sharp pointed. After the inferior meatus has been thoroughly anæsthetised with cocaine, the end of the cannula is passed below the inferior turbinate to a distance of about $1\frac{1}{2}$ to $1\frac{1}{2}$ inch from the anterior nasal spine. Here the sharp point is pressed upwards and outwards against the outer wall of the nose—*i. e.*, the partition between the nose and the antrum. A little force usually suffices to pierce this bony plate. If on aspiration pus be obtained, the diagnosis is made. If no pus appear, then, as a confirmatory test, we may employ a method lately advocated by Lichtwitz,†—*viz.*, exploratory washing of the cavity. To carry out this procedure simply detach the syringe and leave the cannula *in situ*, then, having filled it with a weak, tepid solution of boracic acid, reconnect it, and discharge the solution into the antrum. Any pus that may be present in the cavity will be carried by the stream through the natural orifice into the nose, and thence into the vessel which receives the washings.

The first objection to exploratory puncture, simple though it be, and devoid of danger, is that some patients, regarding it as an operation, will not submit to it.

The second objection is that we may be unable to reach the antrum, because, either the internal conformation of the nose prevents us introducing the instrument, or having got it properly into position, we are unable to penetrate the cavity owing to the thickness of the partition. It is often in those cases in which we are unable to perforate that we have most need of this test. I shall explain this by briefly describing a case. In this patient, from a few vague symptoms I was led to consider the possibility of antral disease being present. I applied the method of transillumination, and found the red tache corresponding to the antrum on the one side normal, but on the other completely absent. I then tried to aspirate the antrum on the dark side, but was unable to pierce the wall. The only means that now remained to me of clearing up the diagnosis was to open the antrum from the mouth, and

* *Berl. Klin. Wochenschr.*, No. 50, 1888.

† *Bull. Médical*, No. 86, 1890.

fortunately for this purpose it was unnecessary to extract a tooth. I therefore drilled a passage though the alveolus into the cavity, but found not a trace of pus. In this case probably the antrum on the suspected side was small, with thick walls, hence the absence of the bright tache on that side, and my inability to reach the cavity from the nose.

Other obstacles to the performance of aspiration are—inspissation of the secretion, so that it cannot be withdrawn; or its scantiness, so that the surface is beneath the level of the cannula. In either case, however, its presence may be proved by Lichtwitz's exploratory irrigation.

These methods, together with the examination of the nose, are of most service in diagnosing antral suppuration. Numerous other aids have been recommended, but these are either without value or difficult of execution—*e.g.*, percussion (Link*), auscultation (Bermond†) probing the opening (Hansberg‡), sponging, or aspirating through the natural orifice (Bresgen§), washing out through the normal orifice, or through a foramen accessorium, or by means of an artificial opening in the middle meatus (Hartmann||) injection of peroxide of hydrogen into the cavity, so that if pus be present it will be driven out and fill the nose with white foam (Moreau Brown¶).

TREATMENT.

One author (Jelenffy**) has recommended that, in treating this disease, no operation should be performed, but that the cavity should be cleansed by allowing fluids to flow in from the nose. This has been proved to be impracticable in most cases (Neumann††). Special cannulas for introducing fluids through the natural orifice have been devised by Stoerk, Hartmann, and Schiffers.

When we consider, however, that the mere sounding of the orifice with a fine probe is difficult, and in many subjects

* *Wiener Klin. Wochenschr.*, No. 31, 1888.

† Mentioned by Jeanty, *De l'empyème latent de l'antré d'Highmore*, 1891, p. 51.

‡ *Monatsschr. f. Ohrenheilk.*, Nos. 1 and 2, 1890.

§ *Therapeut. Monatshefte*, March, 1888.

|| *Berl. Klin. Wochenschr.*, No. 21, 1884.

¶ *New York Med. Jour.*, 19th July, 1890 (abstract in *Jour. Laryngol. and Rhin.*, 1890, p. 520).

** *Berl. Klin. Wochenschr.*, Nos. 11 and 35, 1889.

†† *Pester Medizinisch-Chirurgische Presse*, No. 11, 1889.

impossible,* it is evident that, excepting in a few favourable cases, and where the surgeon possesses special manipulative dexterity, some other method had better be adopted. Further, since the disease is often of such an obstinate nature as to require constant treatment for months, it is advisable to provide at once for such a contingency by establishing a counter-opening, through which the irrigation of the antrum can be comfortably carried out either by the surgeon or by the patient himself.

A counter-opening may be made either from the mouth or from the nose.

In the mouth one may operate either from the canine fossa (Desault), or from the socket of a tooth (Cooper).

The canine fossa is chosen when the teeth are gone, and that part of the alveolar process underlying the antrum is absorbed, or when it is undesirable to extract a tooth.

If the antral disease can be traced to a dental affection, then the tooth or teeth which were the exciting cause should be removed and the counter-opening made through the floor of the socket. If all the teeth underlying the antrum are apparently healthy, it then comes to be a question whether a sound tooth should be sacrificed. Whether the canine fossa or an alveolus be chosen, a passage is bored into the antrum with a small hand drill, or with a burr driven by a dental machine, or by an electric motor.

In the majority of cases the opening is made from an alveolus. This being done, two indications must be kept in view—(1) To promote the escape of the pus; (2) to prevent the passage of particles of food from the mouth into the cavity.

A fine india-rubber drainage-tube is unsuitable, because the least pressure causes collapse of its walls; it is also necessary to have a thread attached to it passing out at the corner of the mouth. If this precaution be not taken the patient may some day come with the story that he has swallowed the tube while asleep. One of my patients asserted that this had occurred in his case. It turned out, however, that the tube had slipped into the antrum, as was proved by its being driven into the nose on washing out the cavity.

Perhaps the best kind of drainage-tube for this purpose is Ellis's coiled wire. This retains its position very well owing

* Hansberg succeeded in probing the antral orifice in two-thirds of the cadavers examined by him (*op. cit.*, p. 6). Owing to the greater roominess of the nasal passages, this manœuvre is much easier on the dead than on the living subject.

to the surrounding tissues contracting upon it, and it may be prevented from slipping upwards by widening the lower coil (Macdonald).

Hajek has introduced a simple self-retaining tube which the patient can remove and replace as he desires.

The most comfortable arrangement is to have a metal plate and tube made and fixed to the contiguous teeth by a dentist, in the manner described by Salter.*

Instead of the mouth we may choose the nose as the site for operation.

Although many recent papers† show that cases in which a passage has been established between the antrum and nose have done well, I shall not trouble you with a description of the various intra-nasal operations, but shall merely mention that the advantages claimed for this method are—(1) Particles of food cannot gain access to the antrum; (2) Pus does not flow into the mouth and injure the digestion; (3) Extraction of a tooth is unnecessary. On the other hand, the disadvantages are—(1) Drainage cannot be so thorough, because the opening is not at the lowest part of the cavity; (2) It is uncomfortable, difficult, and in some cases impossible for the patient himself to carry out the after treatment.

On the whole, therefore, an operation from the mouth is to be preferred.

A counter-opening having been established, the after treatment consists in washing out the cavity with warm, disinfecting, and astringent lotions, such as Condy's fluid or sulphate of zinc. The frequency with which this should be done will be regulated by the amount of pus formed. The washing is best carried out by means of a syringe which can be adapted to the alveolar or nasal opening. As the treatment has sometimes to be continued for months, the patient usually prefers to employ the easiest measures—*e.g.*, after washing out the mouth carefully, he may fill it with the warm medicated solution, and then, by the action of the tongue and cheeks, force this through the antrum and out by the nose. A little practice enables the patient to do this quickly and effectually.

Another method introduced by Krause‡ in 1889, consists in thoroughly washing out the antrum, then drying it by blowing air through, and afterwards filling it with iodol.

* Salter, "Abscess of Antrum," Holmes's *System of Surgery*, vol. iv.

† By Mikulicz, Fränkel, Weinlechner, Link, Bronner, Friedländer, &c.

‡ Krause-Friedländer, *Berl. Klin. Wochenschr.*, No. 37, 1889.

Some authors * say that they have obtained rapid cures by curetting the antrum. This procedure is certainly commendable in very chronic cases when the mucous membrane has assumed the characters of a pus-forming membrane. Owing, however, to the shape of the cavity, certain areas will be inaccessible to the instrument unless the counter-opening be very large.

If the purulent secretion continue unabated, Schech † recommends that the drainage passage be widened or a fresh opening be made in the canine fossa, and the cavity tamponaded with iodoform gauze.

The treatment must be continued until the purulent discharge from the antrum has completely ceased. Then the drainage tube may be removed and the passage allowed to close.

From this sketch of suppuration in the antrum of Highmore, it will be observed that great advances have been made in the knowledge of the disease during a comparatively brief space of time. There still, however, remains much to be discovered. The question of the etiology of the affection is unsettled; the means of diagnosis leave much to be desired; and the methods of treatment, in spite of which the disease frequently persists for months, and even years, cannot but be regarded as unsatisfactory.

CORRESPONDENCE.

TUBERCULOSIS AS AN INFECTIOUS DISEASE.

To the Editors of the "Glasgow Medical Journal."

DEAR SIRS,—It was my full intention to take part in the discussion on "Tuberculosis as an Infectious Disease," at the Medico-Chirurgical Society, but, unfortunately for myself, I was prevented from being present at the meeting on the 18th of December. I have, however, read with much interest, in the pages of your *Journal*, the report of the meeting, and shall now be obliged if you permit me to communicate a few

* V. Dittel in discussion on Chiari's paper, *Wien. Klin. Wochenschr.*, Nos. 48 and 51, 1889; Hunter Mackenzie, *Lancet*, 7th March, 1891.

† *Die Krankh. der Nebenhöhlen der Nase* (2 Aufl., 1890), p. 23.

remarks respecting the subject under discussion. In perusing the report of the meeting, I observe that most of the speakers imply, perhaps unconsciously, that the idea of the infectious nature of tuberculosis is a new one, and is now for the first time calling forth a vigorous expression of medical opinion, in order that the ravages of the disease may be arrested. Certainly throughout the greater part of the present century the infectious tendency of tuberculosis has been overlooked by the leading teachers of pathology and medicine. I believe this is due to two circumstances, which I shall presently refer to.

The contagious nature of tubercular disease of the lung was believed in by many ancient authors of high authority, at the head of whom we may place Morgagni, who was convinced and taught that tubercular disease was communicable from one person to another. And, indeed, for a considerable period after Morgagni's time, all over the southern part of Europe, in Spain, France, and Italy, those opinions were strongly adhered to, and severe and active measures were taken to prevent the disease from spreading. In Northern Europe, however, this belief did not prevail. It may also be observed in passing that in this country the "old women" retained the conviction of "consumption" being contagious to other members of the family long after the medical profession gave up isolating consumptive patients. I have known myself of instances where well informed ladies, mothers of young families, have taken every possible precaution to prevent the spreading of consumption after it has attacked one member of their family. As an example, the eldest member of a family was attacked with consumption, and as soon as the nature of the disease was ascertained, the mother, of her own accord, isolated the individual, and was most careful not to allow any other members of the family to remain more than a few minutes in the patient's presence. The greatest care also was taken regarding clothing worn by such a person, so that it might not be given away, or worn by other members of the family, and after death the room was disinfected as perfectly as is now done in cases of scarlet fever. It is also well known that at health resorts, such as the Riviera, it is not safe to use the pillows supplied in the hotels, and rather than do so, many cautious visitors supply their own.

The two predominating ideas which crushed out the belief in tuberculosis as being an infectious disease were the theories of the influence of cachexia and heredity. Towards

the end of last century, may I say till the present time, an opinion existed in the minds of many, and exists still, I fear, in the minds of some, that there is a tubercular cachexia "*without which tubercular disease cannot occur.*" The term cachexia was not then used to imply a constitutional condition produced by the disease, but a morbid state of the system which precedes and attends it. The belief in such a theory, it is obvious, at once precluded the idea of tuberculosis being communicated from one person to another.

The second idea which has tended to obscure the infectious nature of tubercular disease is the undue regard which has been paid to heredity as an etiological factor. Dr. Steven has mentioned this point, and I agree with what he has said. The subject is, however, a very large one, and I fear to enter upon it now further than to say, that while no one is justified in overlooking the importance of heredity as an influence in the development of tubercular disease, I consider that its influence has been greatly overestimated. Indeed, I believe heredity has been blamed in many instances where infection was the real cause of the disease.

I shall now give a very brief summary of four cases of direct infection which have come under my observation:—

(1) Case of scarlatinal ulceration of pharynx and larynx in a child, complicated with renal disease. Ulcers in throat almost healed in second week of fever, when the ulcer gradually became worse, and presented characters of tubercular disease. Child's nurse discovered to be suffering from chronic phthisis. Death of child two months after from renal disease. *Post-mortem* showed tubercular lesion to be limited to ulcerated surface. Tubercular bacilli—no tubercular lesion elsewhere.

(2 and 3) In 1884 Miss A. B. suffered from chronic phthisis pulmonalis, but was allowed to occupy the same bed as her sister, C. D., who after three months (October, 1884) developed well marked primary laryngeal tuberculosis, which remained limited to the larynx for four months and a half (February, 1885), then the lungs became rapidly involved. A. B. died in March, 1885, when another sister, E. F., who was then in perfect health, came to occupy the bedroom with C. D. E. F. remained well for two months only (May, 1885), and gradually developed phthisis pulmonalis. In May, 1885, I saw C. D. on account of throat affection, heard the story, and ordered isolation from the rest of the family of seven. C. D. died April, 1886, and E. F. died June, 1886. All the other members of the family remain well.

(4) Mr. M. in 1887 suffered from phthisis pulmonalis, Mrs. M. acting as nurse, and occupying the same bed for three months after discovery of cavity in Mr. M.'s lung (October, 1887). In January, 1888, Mrs. M. develops marked and rapidly increasing primary laryngeal tuberculosis, soon followed by widely disseminated pulmonary disease. Dies in August, 1888, four months before her husband. Before his illness she enjoyed perfect health.

These cases I think speak for themselves, and require no remark.

While I observe that the discussion was on "Tuberculosis as an Infectious Disease," I think, at the same time, that the question was discussed in too limited a sense. During recent years rather much has been made of the bacteriological aspects of the subject.

Dr. Steven only proposes two (?) preventive measures—(1) that of isolation, and (2) that of preventing dissemination of the virus. Does the one not include the other? I do not altogether agree with Dr. Steven when he describes tuberculosis as a "highly infectious malady;" I would rather say that it was infectious, but only slightly so, and only under certain conditions. These conditions must be considered as well as the circumstance that the disease is spread by the propagation of a particular micro-organism. The soil upon which they are planted must be suitable for their growth, otherwise none of us would escape. In lecturing upon the pathology of tuberculosis, I always taught that originally non-tubercular cases of inflammation of the lung (catarrhal or fibrinous pneumonia) might become infected after the patients were brought into a hospital ward where cases of phthisis pulmonalis were also resident.

To isolate tubercular patients in a hospital, as we do in cases of fever, is beyond the power of the sanitary authorities, and to my mind is not desirable. In the cases of fevers, we have to deal with acute diseases of a highly infectious nature, whereas in tubercular disease we would require to treat the cases for months, and in some instances for years. For Glasgow alone, in order that all tubercular cases might be isolated, how many beds would the hospital require? What would be the cost of upkeep, and who would pay for it?

In discussing the preventive measures to be adopted to hinder the extension of tubercular disease, all the etiological factors of that disease must be considered, and not one only. Our whole attention must not be given to the seed, while the

cultivators of the soil are neglected. The evil cultivators of tuberculosis are—(1) the transmission by inheritance of certain peculiarities which in some way predispose individuals or races to the disease,* and (2) improper sanitary conditions, including want of cleanliness, improper clothing, excessive labour, deficient outdoor exercise, and above all others, impure air and want of sunlight.† All the conditions under section 2 act by reducing the resisting power of the individual, either by deteriorating the general health, or by producing local inflammatory lesions which may become infected.

Any measures that can be adopted must be very incomplete. Suppose at this very moment we could collect all the cases of tuberculosis in the country, and separate them thoroughly from the rest of the population, would we not have another crop of cases next year, and for many years to come? It seems to me what we should strive to do is, on the one hand, to diminish as far as possible intimate intercourse between the diseased and the healthy; complete isolation seems impracticable. On the other hand, by improving the sanitary condition of dwellings in every way, thereby make those who are healthy less liable to attack by increasing their resisting power to the disease. To facilitate these objects, and in order that we might have some assurance that the people are instructed regarding the dangers of infection by tuberculosis, I would have no objection that tuberculosis should be included under infectious diseases for the purpose of compulsory notification. The duties of the sanitary authorities being not to separate the individual from the rest of the population by taking him to a hospital as in cases of fever, but their duty should simply be to see that the patient is as completely as possible kept from close contact with other members of the family.

DAVID NEWMAN.

GLASGOW, 8th January, 1892.

* Two questions have frequently occurred to me, but I have been unable to enquire into the subject. The first is, is it possible or likely that families or races may acquire an immunity from tuberculosis? Is recovery from tuberculosis not more common in this country now than it used to be?

† Second, what is the effect of direct sunlight upon the tubercular bacillus, and in what way does the want of sunlight predispose individuals to attacks of tuberculosis? I have observed in children suffering from tubercular skin disease, sent to the country during the summer time, that the patches upon the exposed surfaces of the body healed more rapidly than those on the covered parts.

CURRENT TOPICS.

INFECTIOUSNESS OF TUBERCULOSIS.—In accordance with the instructions given to them by the Medico-Chirurgical Society (see January number, p. 41), the Committee appointed for the purpose drew up the following memorial:—

“To the Honourable the Lord Provost, the Magistrates, and Council of the City and Royal Burgh of Glasgow, as the Police Commissioners thereof.

“The Medico-Chirurgical Society of Glasgow, a body consisting of over 200 members, mostly practitioners in the West of Scotland, held a discussion, and arrived at the following resolution at a meeting on the 18th December, 1891:—‘That a memorial be presented to the Town Council of Glasgow calling their attention to the fact that tuberculosis is now fully recognised as an infectious disease, and asking them to take the matter into their serious consideration, with a view to the protection of the community from the infection.’

“A Committee was afterwards appointed to frame such a memorial as would serve to indicate with somewhat more of detail the views and objects aimed at in the resolution. We beg, accordingly, to submit to your Lordship, and to the Magistrates and the Town Council, the following considerations:—

“1. Tuberculosis is an infectious disease in the sense that in all cases of this disease the one constant and necessary element in the causation is a microbe. This microbe grows and multiplies in the bodies of certain animals and of man, when introduced from without, and in so doing it produces an intensely active poison, which is the more direct agent in bringing about the morbid changes in the living structures. There are doubtless other elements in the causation, such as inherited and acquired susceptibility, but the microbe is the only essential and constant one, and there is evidence to show that, without any special susceptibility, it may produce the disease if introduced in sufficient quantity.

“2. As the microbe will not grow except at a temperature almost identical with that of the body, the living bodies of men and animals affected are the great propagating places of it. They are the sources of the supply, and constitute the centres from which the infection is derived. But the microbe is not retained in the bodies of the persons affected. Most

of the forms of tuberculosis are characterised by discharges of matter from the affected parts of the body, and these discharges contain the microbe—often in very large quantities. The most frequent form of tuberculosis is consumption of the lungs, and persons affected with this disease almost constantly spit up matter which is loaded with the infective microbe. The spit of such persons when dry is liable to be pulverised into fine dust, and this in its dissemination carries the still living microbe with it.

“3. It is believed that tuberculosis is fairly to be compared, as regards its infectious quality, if not with typhus and small-pox, at least with typhoid or enteric fever, although the mode and channel of the infection may be so different as to make it much less obviously dangerous to live in the same house or room with a case of consumption than it would be in the case of one of the well known contagious fevers. Tuberculosis, however, is much more disastrous in its results than all the other infectious diseases put together. According to the Annual Report of the Registrar-General for 1888, the deaths registered as due to tuberculosis in Glasgow numbered 1,824, and those assigned to all other miasmatic—that is, infectious diseases, including measles, scarlet fever, hooping-cough, &c., were 1,089. For reasons known to us, it seems certain that the mortality from tuberculosis considerably exceeds that which appears in the Registrar-General's returns, but even these figures are sufficiently striking. The deaths registered as tuberculous made up 15·5 per cent of the total deaths in Glasgow in 1888. These facts imply a large amount of what may be called ‘floating infection’ in our midst.

“4. The Town Council by its action in prohibiting the sale of tuberculous meat and milk, has, in our opinion very properly, endeavoured to grapple with one source of the infection. It may be said that the great prevalence of tuberculosis in cattle, especially in milk-cows kept in town-byres, and therefore both more likely to be infected with tuberculosis and to become, in turn, sources of infection through their milk, has justly been already considered by the authorities. We recognise the wisdom of a policy having for its object the removal of this source of infection, which is dangerous for man as well as for animals. It should be possible by rigid cleansing and disinfecting of byres, and by the condemnation of all carcasses or animals known to be tuberculous, to stop this source of infection.

“5. It is not for us to prescribe the mode in which the

infection should be dealt with in the case of man. The Council has skilled officials whom it can consult on the matter. But we venture to suggest that a beginning should be made with a definite attempt to stay the infection. If the public were authoritatively informed of the harmful nature of all discharges from tuberculous persons, and more particularly from cases of consumption of the lungs, and if they were encouraged to have these discharges rendered innocuous, and also to submit their houses and clothing to disinfection at intervals during the currency of the disease, and again at its close, it is believed that much good would result. With the splendid sanitary organisation which Glasgow possesses, it should be possible to do much to cleanse our city from some of the principal causes of the wide-spread prevalence of this, its greatest plague.

"On behalf of the Society,

"JOSEPH COATS, M.D., *President*.

"W. T. GAIRDNER, M.D.

"HUGH THOMSON, M.D.

"JOHN LINDSAY STEVEN, M.D.

"CHARLES WORKMAN, M.D.

"J. WALKER DOWNIE, M.D., *Secretary*."

On Monday, 25th January, 1892, on the invitation of the Town Council, the gentlemen in charge of the Society's memorial attended a meeting of the Health Committee as a deputation. The members present were Drs. Joseph Coats, J. Lindsay Steven, Charles Workman, and Walker Downie. Dr. Coats read a letter of apology from Professor Gairdner, and briefly spoke in support of the memorial, calling special attention to the suggestions in paragraph 5. Dr. Lindsay Steven said that he had recently read that in France certain of the municipal authorities had sanitary regulations dealing with the disinfection of houses occupied by tubercular patients, and Dr. Charles Workman drew attention to the necessity for clearly informing the public of the infectious nature of tuberculosis. Dr. Walker Downie concurred in what had been said. After a number of questions as to details had been asked, and as far as possible answered, the deputation, having been thanked by the Convener, withdrew.

ON THE ARRANGEMENTS FOR THE PREVENTION OF EPIDEMIC CHOLERA IN GLASGOW IN 1866.—We have before us a reprint from the *Transactions of the Association of American*

Physicians of an address on this subject delivered by Professor W. T. Gairdner in September, 1891. This paper is not only an interesting memento of the visit of our distinguished townsman to America last year, but is also a most important chapter in the medical and sanitary history of Glasgow. The account of what was done in our city in 1866 is recorded in the professor's best style, and cannot fail to be of great service to any community or sanitary authority that may in the future be placed in a similar position. Referring to the state of sanitary law in 1866 as it applied to typhus fever, then very prevalent in Glasgow, Dr. Gairdner shows that it was quite incapable of making any material impression upon the spread of the disease. This defect in sanitary legislation has long since ceased, but in contrast to the then state of the law as to "what was regarded as a home-bred pestilence," it is pointed out how, under the powerful influence of an intense dread of the approach of epidemic cholera, the sanitary authorities were at once invested with almost autocratic powers. We cannot refer in detail to the numerous precautions that were taken with reference to water supply, hospital accommodation, the provision of a nursing staff, the opening of dispensaries for medicines and disinfectants, and the arrangements in advance of a medical staff, but we would like to make special mention of the difficulty which Professor Gairdner, then medical officer of health for the city, experienced in finding a mode of conveying accurate information with regard to the true nature of the epidemic, and the necessary precautions to be taken, to the householders in densely populated districts of the town, so that, as far as possible, measures might be taken to prevent unreasoning panic in case the epidemic should come. With this difficulty running through all his thoughts, Dr. Gairdner opened his mind to a much respected Presbyterian clergyman, and asked him if he could tell him how he could obtain *at once* hundreds of willing workers to convey instruction to the homes of the poor. The minister's reply was unhesitating, and in the form of a question—"Why not apply to the churches? They will do it, and give you all the volunteers you want, only for the love of God." The result of this conversation was that a strong army of workers was soon organised, and every district of the city was thoroughly cared for, so that any risk of a local and increasing panic was entirely removed. The ultimate result was that Glasgow escaped with about 66 cases of true cholera and a few hundred of choleraic diarrhoea. Our readers cannot fail to be interested in this important record of a bygone

period of threatened danger to our citizens, and of the excellent arrangements by which the dreaded scourge was turned aside. The foot-note with which the pamphlet is closed is worthy of being quoted in full. "A notable example of what Mr. Matthew Arnold might have called the 'Philistine' point of view of these transactions was contained in the remark of a very eminent citizen of Glasgow at the time—viz., that after all the fuss made about the cholera, and all the expense incurred in its prevention, 'the cholera did not come!'"

THE GREENING OF PEAS WITH SULPHATE OF COPPER.—Our contemporary, the *Lancet*, commenting upon the recent decision of Sheriff Birnie in favour of the pursuers in the action raised against them by the Local Authority, says:—"It cannot be denied that even small quantities of copper in food, though comparatively harmless to healthy adults, may not improbably give rise to unpleasant consequences in an invalid or a child." In this we thoroughly agree with the *Lancet*, and, in common with all those who think that poisons, whether in injurious quantities or not, should not be employed in the preparation of our food, we are much disappointed at the result of the action. The interpretation and administration of the existing law may be safely left in the hands of the legal authorities, but the issue involved in the action raised by the sanitary office of Glasgow goes much deeper than this. A very important general principle is involved. Whatever the state of the law may be, it will be very generally admitted that under no circumstances can it be right to use mineral poisons in the preparation of food. The fact that a non-poisonous dose is employed for the purpose does not in the least violate the validity of this principle, and the only effect of the use of such poisons, in our opinion, is to deteriorate the nutrient value of the foods so "doctored," and also, in a large proportion of cases, the health of those foolish enough to use them. We hope that the sanitary authorities will not be discouraged, but will continue their efforts to obtain for the people of Glasgow a good and pure food supply, even though it should require a new Act of Parliament for the purpose.

AN INTERNATIONAL CONGRESS FOR MIDWIFERY AND GYNÆCOLOGY will take place at Brussels from the 14th to the 19th September, 1892, under the patronage of the Belgian Gynæcological and Obstetrical Society. This is intended to be the first of a series of International Congresses to be held

every four years alternately in Switzerland and Belgium. Three special subjects have been set down for discussion at the Congress—viz., (1) On Pelvic Suppurations, introduced by Dr. P. Segoud, Paris; (2) On Extra-uterine Pregnancies, by Dr. A. Martin, Berlin; and (3) On Placenta Prævia, by Dr. Berry Hart, Edinburgh.

It is proposed to have an international exhibition of instruments and apparatus relating to gynæcology and obstetrics connected with the Congress.

The subscription to the Congress will be 30 francs, which will entitle the member to a copy of the Transactions. The secretary is Dr. Jacobs, 12 Rue des Petits-Carmes, Brussels.

THE ELEVENTH GERMAN MEDICAL CONGRESS.—We have received intimation that the eleventh annual meeting of this Congress will be held, from the 20th to the 30th April next, within the "Deutschen Buchhändlerhause" at Leipzig, under the presidency of Professor Curschmann. Besides a large number of promised contributions, discussions on the following subjects will be held:—(1) On Severe Anæmic Conditions, introduced by Drs. Biermer of Breslau and Ehrlich of Berlin; (2) On Chronic Inflammation of the Liver, by Drs. Rosenstein of Leyden and Stadelmann of Dorpat.

Obituary.

THE LATE JAMES CHRISTIE, A.M., M.D.

WE regret to announce the death of a member of the profession who, while well known here, had also a wider reputation—we refer to Dr. James Christie, till November last the Medical Officer of Health for Hillhead. He died on 2nd January. Dr. Christie was born in Strathaven in May, 1829, and was educated in the University of Glasgow, passing through the Arts course at the time when Professor Edward Caird, Professor John Nichol, Professor Jack, Dr. T. C. Finlayson of Manchester, the late Dr. J. M. Ross of Edinburgh, Dr. Service of Glasgow, and Dr. James Brown of Paisley, were students here. He graduated as Bachelor of Arts at our University, proceeding to the Divinity Hall of the Evangelical Union denomination.

He was ordained in 1856 ; but a weakness in his throat led to his abandoning this profession. He kept up a certain connection with the Evangelical Union, but in later years, on the settlement of his friend Dr. Service at Hyndland, he was naturally drawn to his ministry there.

Taking his degree of M.A. in 1857, and leaving divinity, Dr. Christie took to the study of medicine, his degree of Doctor of Medicine being obtained at Glasgow in 1860. He was a resident assistant in the Glasgow Royal Infirmary, and was also associated with the late Dr. Pagan in the work of the University Maternity Hospital ; it was probably by Dr. Pagan's influence and advice that Dr. Christie became a resident assistant at our asylum at Gartnavel soon after his graduation. His first contribution to medical literature was in this department—a paper on "Suicidal Impulse" appearing in the *Glasgow Medical Journal* in 1864. He continued to take special interest in cases of insanity and in our asylum here, till the close of his career. After leaving asylum work he proceeded to Africa in 1865, and held the appointment as Physician to His Highness the Sultan of Zanzibar for about ten years. While there he acquired personal experience of various tropical disorders, which enabled him to speak with authority on some rare diseases prevalent there, and also on some of the great epidemics. A joint-production of his with Capt. H. A. Fraser and Bishop Tozer appeared in London in 1871 on *The East African Slave Trade and the Measures Proposed for its Abolition*. While at Zanzibar he became acquainted with Dr. Livingstone, and it is said that Dr. Christie was the last white man the great traveller saw on his departure for his final exploration. The servant who embalmed Livingstone's body was one who had worked under Dr. Christie, and had probably acquired technical knowledge with him sufficient to enable him to do so.

Returning to Glasgow about 1875, Dr. Christie began practice here, and produced in 1876 a book by which he became widely known, *Cholera Epidemics in East Africa: an Account of the Several Diffusions of the Disease from 1821 till 1872* (London, 1876). In 1876 he was appointed one of the surgeons to the out-patient department of the Glasgow Western Infirmary, and he continued his connection with this institution till now, being transferred a few years ago to more congenial work as an assistant physician there. On the death of the late Dr. Dobbie of Hillhead, in the beginning of 1878, Dr. Christie succeeded to his practice there, at the same time removing to his residence in Bank Street, where he remained till his death. Here he had a

pretty extensive general practice; but his literary tastes and unobtrusive manners kept him back, as compared with others, in the whirl of practice, so that he found time for the cultivation of other work, for which perhaps he had more special aptitude. His special aptitudes, indeed, lay rather on the borders of literature, as he had great facility in writing and literary expression. He wrote the medical articles for the *Globe Cyclopædia*, which was edited by his old fellow-student, Dr. J. Merry Ross. More recently his literary activity found an outlet in editing the *Sanitary Journal*, a periodical founded in Glasgow in 1876; it has been under the editorship of Dr. Christie since June of that year. The study of cholera had naturally directed Dr. Christie's mind to sanitary subjects, and he had written various articles on sanitary matters in the *Glasgow Medical Journal*. He was regarded as an authority on many sanitary questions, and was frequently called as a witness or a referee in legal cases of this kind. His work as editor of the *Sanitary Journal* brought him into relationship with most of the leading sanitary authorities not only in this country, but throughout Europe and America, and also in India, where his African connection made him well known.

His special knowledge of tropical diseases led to his being asked to write the articles on some of these subjects in Dr. McCall Anderson's *Treatise on Skin Diseases* (1887). Another little production of his pen, on which he had expended much time, was "On Epidemics of Dengue Fever: their Diffusion and Etiology." This appeared in the *Glasgow Medical Journal* in 1881. It has a special interest at the present time, when various authorities allege the relationship, or the identity, of our prevalent influenza with this peculiar disease. Dr. Christie had, however, a more ambitious project in his mind, and so far in hand, in connection with "dengue." He aimed at compiling or summarising all the published works on the subject, but the almost insuperable difficulties in accomplishing this in Glasgow, or even anywhere in this country, prevented its ever being brought to a completion. In connection with sanitary work, to which he was so much attached, Dr. Christie was appointed many years a lecturer on public health in Anderson's College, the duties of the post, in the apathy existing then, being almost nominal. His connection with Anderson's College led him to come forward to fill a vacancy in the Chair of Physiology there, a post which he continued to hold till 1891. Beginning to teach such a subject at his age, it need scarcely be said that his success in such a position could not be very brilliant. He introduced, however, a new feature in this

course by securing the services of specialists to give a few lectures each to his students on the physiology of special organs. At the time of his death he held the appointments in the Faculty of Physicians and Surgeons of examiner in physiology and also in psychological medicine. He was likewise an examiner in arts for the preliminary examination. Dr. Christie took an active part in the arrangements for the meeting of the British Medical Association in Glasgow, in 1888, and in connection with this visit he published in our pages a series of articles on the "Medical Institutions of Glasgow," which contains some data interesting as local history. This was also published separately as a volume.

More than a year ago Dr. Christie's health was known to be bad; but about that time alarming attacks of angina pectoris occurred with such violence that it seemed doubtful if he would ever resume medical work. His naturally calm temperament came to his aid and he rallied; but in spring time again other complications supervened, which seemed to preclude hope. Again, however, he improved, and last summer and autumn he might be seen going about and conducting examinations in Glasgow or Edinburgh as if little or nothing were amiss. But the disorder was only in abeyance; and from the beginning of this winter fresh complications appeared, confining him almost entirely to his house, and leading on to the fatal result. Even in his seclusion he occupied his time in revising the last, if not the current, number of his *Sanitary Journal* for the press.

Dr. Christie was a corresponding member of the Medical and Physical Society of Bombay; an Associate of the Society of Hygiene of France; Secretary of the Epidemiological Society of London for the District of the Indian Ocean and East Africa; and a number of various other learned societies. His character and his work appear, so far, from the preceding notes. Of a cultured mind, and somewhat dignified manners, his carefully guarded phraseology always ensured considerable attention to his utterances in meetings or in debate; although, as already stated, his greatest weight was probably in the literary form. This, and his varied experiences in tropical regions, must cause his death to be felt as a distinct loss to the profession and the community at large.

REVIEWS.

A Guide to Therapeutics. By ROBERT FARQUHARSON, M.P., M.D. Fifth Edition. London: Smith, Elder & Co.

THE fact that Dr. Farquharson's manual has reached a fifth edition must be recognised as a demonstration of its usefulness, in at least some respects; and undoubtedly the volume has many features which must make it welcome to students preparing for examination. Thus, it mentions, in connection with the principal articles of the *materia medica*, the various diseased conditions in which each may be advantageously employed, it discusses the modes of action of the several remedies, and often affords suggestive hints in the shape of prescriptions and other practical directions. Further, there are well arranged and helpful chapters on the chief classes of medicines, those on purgatives, diaphoretics, and diuretics being especially clear and concise. The section on tonics cannot be regarded as a success. It may be difficult to find a satisfactory definition for the term, but it had better be discarded altogether than applied to "anything which improves the general health," and made to include agents so strongly contrasted as "a good dinner with a good glass of wine" on the one hand, and "bismuth with hydrocyanic acid" on the other. There are other terms of which Dr. Farquharson gives no definition. Thus, whilst on p. 201 we read, "Paraldehyde is a good hypnotic," and "Sulphonel is a very useful narcotic," we cannot find any definitions of these terms, and we are left uncertain whether they are intended to have the same or different meanings. Similar confusion exists in the use of the terms "narcosis" and "anæsthesia." On p. 180, in the chapter on chloroform, we are told that "complete narcosis . . . resembles natural sleep, but differs by its rendering the patient quite insensible to external impressions, including the most severe cutting operations." After reading a few lines, we find it is "the stage of 'anæsthesia' in which he is profoundly insensible," and subsequent to this stage "we reach that of 'narcosis,' in which the face becomes congested, the pupils dilate, and stertorous breathing sets in." Another feature of the book which may be reasonably made the subject of complaint is the absence of any consistent principle of classification and arrangement. Turning the pages at random, we find a chapter on "purgatives" succeeded by sections on "calumba," "pareira," and "opium," whilst "aloes" is discussed at p. 362, "colocynth"

at p. 272, "croton oil" at p. 345, and "gamboge" at p. 255. This is, indeed, a "pepper-castor" arrangement. Similarly, a chapter on diuretics is interposed, for what reason it is difficult to say, between the sections on potassium and sodium; and it is at least perplexing to find the study of *krameria* on p. 249 immediately following the chapter on expectorants, whilst *kino* appears on p. 261, between *scoparium* and balsam of tolu, and tannic acid is not heard of until one reaches p. 350.

The special feature of Dr. Farquharson's book is an attempt to associate the therapeutic uses of each remedy with its known physiological actions, and this is done by printing what has to be said under these two headings in parallel columns. The idea seems a good one, and in many of the chapters is certainly usefully developed. With our present imperfect knowledge of pharmacology, however, it is difficult in the case of many remedies to give a scientific explanation of their curative action, so that Dr. Farquharson's plan has often to be strained to make things appear to fit, and not infrequently breaks down altogether.

When we pass to the details of the book we find much to be dissatisfied with. The directions for therapeutic application and administration are in many cases too vague to be of any practical service. What assistance, for example, can be obtained from the mere statement that nitrate of silver "is a good injection for gonorrhœa, or collyrium for conjunctivitis," unaccompanied by any indication of the strengths of the solutions to be employed for these purposes; or from such a recommendation as "the bicarbonate of potassium forms a good lotion in acute eczema, as an injection in leucorrhœa, and as an application to rheumatic joints"? In what actual condition, we wonder, will a practitioner be tempted to prescribe a salt of lead, and what salt will he prescribe, when he has been informed that "Dr. Thorowgood has obtained good results from lead in obstinate obstruction of the bowels"?

Statements equally vague, and not a few quite as inelegant as some of those we have just quoted, are to be met with only too frequently in Dr. Farquharson's pages. We are afraid, too, that these are not the only indications which this book exhibits of hasty and careless compilation and revision. It seems strange, indeed, that in a *fifth* edition we can be told that subnitrate of bismuth may be given *in solution*, that calomel may be *dissolved* in lime water, and that *mistura ferri composita* is made from ferric sulphate. And it is at least equally strange that caffeine, having been discussed on p. 204, should reappear on p. 403; and that having described

the action and uses of strophanthus on p. 173, our author should proceed to repeat himself on p. 340, the drug on each occasion having the dignity of a special section to itself.

From the preface to the fourth edition of his book, we learn that Dr. Farquharson had an opportunity "of working through an early copy of the new edition" of the *Pharmacopœia*, which was issued in 1885, and in the preface to the present volume he expresses his familiarity with what he calls "the supplement to the companion to their (*sic*) latest edition," by which, from the context, it appears he means the "Additions to the British Pharmacopœia" (1890). After enjoying such privileges, it is disappointing to find no reference in his pages to hydrobromate of homatropine phenacetin, or the value of eucalyptus gum as an astringent. And it is quite inexcusable to read in the section entitled "Non-official Preparations" the names of salicin, gelsemium, and ethylate of sodium, each of which was made official in 1885, as well as nitrite of sodium, eucalyptus gum, and picrotoxin, which are all included in the "additions" (1890). Other evidences of want of attention to the detailed changes made in the last edition of the *Pharmacopœia* appear on p. 233, where the proportion of the active ingredient in the hypodermic injections of apomorphine and morphine is in each case incorrectly stated, and though Dr. Farquharson, in writing his preface in 1885, observed the changed terminations adopted for the official alkaloids, the alteration has not reached the text, which he presumably revised in 1891. He also still writes about salts of "potash" and "soda," and spells *asafoetida* in the old-fashioned way; and that, too, though his respect for the *Pharmacopœia* is so great that he more than once makes it command a verb in the plural. We scarcely think, however, this latter remarkable tribute to the official standard will be accepted as a satisfactory atonement for the neglect of its detailed instructions. No doubt the volume before us has good features, which we gladly recognise, but we certainly cannot acknowledge that, without careful rearrangement and thorough revision, it can claim to be a well-ordered and really useful "guide to therapeutics."

Modern Materia Medica. By H. HELBING, F.C.S. Second Edition. Offices of *The British and Colonial Druggist*. 1891.

THE purpose of this small volume is to supply, in a convenient form, details concerning the various new remedies

that have been introduced during recent years. It is more particularly the numerous artificial alkaloids, and other substances now prepared by synthetic methods, that are discussed, and full information is given of their chemical relationships, physical properties, impurities, and tests. There is, in addition, a convenient summary of the medicinal uses of each remedy, together with practical directions for the prescriber and dispenser. The lists of incompatibilities and the tables of solubilities are also useful features. It is with confidence we recommend the book to our readers; they will find in it much practical assistance and direction in the employment of the newer therapeutic agents.

Surgical Diseases of the Ovaries and Fallopian Tubes, including Tubal Pregnancy. By J. BLAND SUTTON, F.R.C.S. With 119 Engravings and 5 Coloured Plates. London, Paris, and Melbourne: Cassell & Co., Limited. 1891.

MUCH of this book has already appeared in medical and scientific periodicals, but Dr. Sutton has done us a distinct service in issuing his work in the present form. It consists of four parts, devoted respectively to Diseases of the Ovaries, Diseases of the Fallopian Tubes, Tubal Pregnancy, and Methods of Performing Operations for Ovarian and Tubal Disease, and it may be regarded as a very satisfactory statement of the present condition of medical science on these points. Dr. Sutton brings to the subject a very full knowledge, acquired not merely from the records of the researches of others, but in a marked degree also from his own original researches. And these researches have not been confined to the human species. The book before us, therefore, has the freshness and interest which always belong to ideas which are acquired at first hand, and which, whether we accept them or not, are the genuine results of investigation and study.

As illustrating Dr. Sutton's method, we may take the discussion of the function of menstruation, which occupies part of the first chapter. In opposition to Williams, Kundrat, Engelmann, and others, who maintain that at every menstruation at least part of the endometrium is thrown off, he is of opinion that in normal menstruation there is no shedding of the epithelium from the uterus. This opinion he bases on the examination of uteri of Macaque monkeys and baboons, which are the only mammals that menstruate besides women. Of these animals, "some were killed when the catamenia

appeared, some at the full height, and others at the decline." "In none of them could any trace of destructive change be detected, either in the uterus or Fallopian tubes—not even shedding of the epithelium."

It is, of course, impossible to obtain human uteri under the same conditions, but it is often possible to obtain Fallopian tubes fresh from the menstruating woman by operation. Dr. Sutton has made frequent examinations of these, and has found no change either in mucous membrane or epithelium. He considers it probable, therefore, that the shedding of the epithelium found in human uteri is a *post-mortem* change. He arrives accordingly at the same conclusion as Möricke, who curetted the endometrium of menstruating women, and found that during menstruation no loss of mucous membrane occurred.

The same comparative method is seen in his discussion of the peculiar kind of tubo-ovarian cyst, which he calls ovarian hydrocele, from analogy with hydrocele of the tunica vaginalis in the male. "There is good reason to believe that they arise in a tunic of peritoneum that occasionally invests the ovary much in the same way that the tunica vaginalis clothes the testis." The ovary normally lies in a shallow recess in the mesosalpinx. This recess he calls the ovarian sac. In many mammals this sac is much deeper than in the human species. In rats and mice it is complete, so that the ovary is quite isolated from the general peritoneal cavity, and the Fallopian tubes communicate only with the interior of the sac. "Stages in the formation of these sacs intermediate between the shallow recess in the human female and the complete pouch of the mouse may be studied in the baboon and porcupine." Dr. Sutton accordingly considers that when we find the Fallopian tube opening by its fimbriated end into a cyst connected with the ovary, or on the wall of which the ovary may be found, we should consider the condition to be an ovarian hydrocele and not an tubo-ovarian cyst. The ovarian sac which this implies has not hitherto been reported in the human subject, but it is not impossible that this interesting suggestion may yet be confirmed by such a discovery.

The same method again leads Dr. Sutton to regard the Fallopian tubes as glandular organs, an idea which their microscopic appearance suggests to any observer. This view he naturally considers confirmed by the occurrence of those interesting but rare cases of adenoma of the Fallopian tube.

The last chapter of the book is devoted to the question of the influence of removal of the ovaries on the secondary sexual

characters of women. From observations both on the human and other species, he comes to the conclusion that removal of the ovaries leads to no unusual development of secondary sexual characters. This is contrary to a very general belief that the woman, when deprived of her ovaries, tends to approach the male type, a movement in development which would be not a reversion to an earlier condition, but an actual progress.

On the subject of extra-uterine gestation, Dr. Sutton expresses himself without hesitation. "All forms of extra-uterine gestation pass their primary stages in the Fallopian tube." It is evident, from the investigations of late years, that the immense majority of extra-uterine gestations are tubal, but it is perhaps still too soon to deny the possibility of any other form. Perhaps also Dr. Sutton goes too far, and certainly he does not follow his usual comparative method when he denies "transmigration of the ovum," and accounts for the pregnancy which occasionally occurs in a rudimentary uterine cornu by saying, "We may take it for granted that the channel of communication between the rudimentary cornu and cervical canal becomes occluded subsequent to impregnation." But we have no wish to point out blemishes in a book which deserves our highest praise. We only wish our English press gave us more frequently works that we could so unhesitatingly recommend to the study of all.

First Lines in Midwifery: a Guide to Attendance on Natural Labour for Medical Students and Midwives. By G. ERNEST HERMAN, M.B. Lond., F.R.C.P. With 80 Illustrations. London, Paris, and Melbourne: Cassell & Co., Limited. 1891.

THIS book starts with the postulate that "the duties of a student in attendance upon his first cases of labour are the same as those of a midwife." This is a dictum with which we cannot agree unless we are to regard the midwife as also a student. This indeed we might do, and find that she did her work none the worse for endeavouring after a full knowledge of midwifery such as is the aim of the student. We are yet, however, far from such a time of educated midwives, and at present we cannot but think that a book for midwives should be perfectly distinct, both in matter and form, from one intended for students.

Regarded, however, as an introduction to the study of midwifery, Dr. Herman's book may be recommended to the attention of the student, and will guide him smoothly and

pleasantly through the early intricacies of the subject. While described as a "guide to attendance on natural labour," it discusses contracted pelvis and pelvimetry, transverse presentations and spontaneous evolution, placenta prævia, and other subjects which are distinctly pathological.

A Treatise on Practical Anatomy for Students of Anatomy and Surgery. By HENRY C. BOENNING, M.D. Philadelphia and London: F. A. Davis. 1891.

TEACHERS of anatomy have for a long time past been on the lookout for a good text-book on practical anatomy; but, hitherto, no work of the kind has appeared which so combined the qualities of conciseness and exactitude as to meet with general acceptance. Of the many works published on this subject, however, the one at present before us seems the most unsatisfactory and disappointing, and, indeed, to be so badly done as to call for the most sweeping condemnation. Perhaps the anatomists of the "old country" are a little old-fashioned, but to them it will seem incomprehensible that any book on *practical* anatomy should contain not the slightest reference to dissection, or even a hint as to how the structures described are to be displayed. This is necessarily the most glaring omission; but a notice of all the important points which fail to receive recognition at the hands of Dr. Boenning would extend this notice beyond reasonable limits; we shall, therefore, confine ourselves to the mention of a few of the most important. The author gives no relations of arteries, and entirely omits the action of the muscles. He does not describe the pelvic fascia or the mediastina. In the description of the arteries of the brain he does not recognise that there are branches going to the interior (central or medullary branches) as well as to the cortex, and his whole description of the middle cerebral or Sylvian artery is contained in the following words:—"*Middle Cerebral*.—Lies in the fissure of Sylvius, and sends branches to the meninges." There is thus no reference to the important fact that this artery supplies the motor convolutions and basal ganglia.

Nor are the author's "sins of commission" less serious than those of "omission." It is many years since anatomists in this country found out that it was not true of the stomach that it "lies transversely across the upper part of the abdominal cavity, beneath the diaphragm, extending from the left hypochondrium across the epigastric into the right hypochondriac

region." The callosso-marginal fissure does not join the fissure of Rolando as a rule, nor does it ever open into the fissure of Sylvius. The sixth nerve does not arise "in the groove between the anterior pyramid and the olivary body." The recurrent laryngeal nerve of the right side does not wind round the innominate artery.

We are not unfamiliar in this country with the transference of diagrams from one book to another without acknowledgment, and we should expect this to be pretty general in America, as that country enjoys a world-wide reputation for literary piracy. Dr. Boenning states in his preface that "the illustrations have been carefully selected, and their sources credited," and after such a statement even the local circumstance above alluded to does not excuse the total absence of any recognition of the original work from which a single one of the 198 diagrams is drawn. All the woodcuts of the bones are borrowed from Gray; those of the ligaments and muscles chiefly from Wilson. The section on the brain contains impressions of what appear to be much damaged electrotypes of German origin, and the author has not taken the trouble to get the German names altered. The illustrations are all badly printed, and the book generally does not support the boasted superiority of Transatlantic printing.

From an advertisement on the last page we gather that the author is the proprietor of a private "School of Anatomy" in Philadelphia, and the book is, no doubt, intended for the students of that school. As Dr. Boenning probably regulates his teaching by the demands of the examining boards, we do not think we are unfair in concluding that both the teaching and examining in anatomy are perfunctory and unsatisfactory in the United States.

Diseases of the Throat, Nose and Ear: a Clinical Manual for Students and Practitioners. By J. M'BRIDE, M.D., F.R.C.P.
Ed. Edinburgh and London: Young J. Pentland. 1892.

LECTURERS on diseases of the ear, throat and nose will welcome Dr. M'Bride's latest volume. To recommend a text-book to students engaged in the study of the diseases affecting those closely associated organs has hitherto been a difficulty with teachers. This volume solves the difficulty. In some six hundred pages of a clearly printed book we have the main facts of laryngology, rhinology, and otology placed before us. Space has been economised by leaving out the descriptive

anatomy of the various parts, and the figuring of instruments employed for purposes of examination and treatment. Good use has been made of the space so reclaimed. The book is written up to date, and is by no means a replica of other works dealing with the same subjects. Of thirty-eight illustrations given, the majority are in colour, and are original; and for the most part they are not only beautiful pictures, but very accurate representations of the diseased conditions described. Exception to this statement must be made to that representing a nasal mucous polypus—rather a difficult subject for an artist—and to one illustrating the severe form of acute inflammation of the middle ear. This illustration shows an acute myringitis, not necessarily associated with middle ear inflammation. Furnished as it is with a very complete general index and an index of authors, it will prove to be not only a useful text-book for students, but a convenient and reliable guide to those regions for the graduate.

Our Unseen Foes, and How to Meet Them. By A. WHEELER.
Bristol: John Wright & Co. 1891.

THIS little book purports to contain *plain words on germs in relation to disease*. It must be admitted that the technicalities of text-books on bacteriology render them more or less sealed books to the general public, and that the vaguest notions prevail as to what germs really are. It would seem that, by a process of analogy from the surroundings of everyday life, the mind very naturally arrives at the idea that a germ is something akin to an insect or a worm. The author's purpose, then, of endeavouring to make bacteria or germs more fully understood to the general reader is highly commendable. The task has been performed in the wake of Koch's announcement of a cure for consumption, with the view of enlightening the public mind to appreciate more fully attempts to combat one or other of the many deadly maladies around us. Perusal of the book affords us the pleasure of stating that the work has been done in a very satisfactory manner, and so as to claim the interest of the reader. The information it contains should be widely disseminated, and should attract more attention to what is being done by bacteriologists like Koch for the public weal, and how much the public might also accomplish in this direction through having more enlightened ideas of germs and their powers for good or for ill.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1891-92.

MEETING V.—8TH JANUARY, 1892.

PATHOLOGICAL SECTION.

JOHN LINDSAY STEVEN, M.D., *Vice-President, in the Chair.*

I.—CANCER OF THE STOMACH, WITH SPECIAL REFERENCE TO
SURGICAL TREATMENT.

BY DR. JOHN LINDSAY STEVEN.

Dr. Lindsay Steven, as Vice-President of the Pathological Section, gave an introductory address, choosing as his subject, "Some Cases of Cancer of the Stomach, with Special Reference to Surgical Treatment." His address is to be published in a complete form, but it may be meantime mentioned that it gave the results of an analysis of cases of cancer of the alimentary canal (excluding the mouth) which had been seen during two years' work in the Royal Infirmary *post-mortem* room. Those in which the stomach was the part affected were discussed in greatest detail, and statistics given as to the age and sex of patients, the exact situation and size of the tumours, the variety of cancer, the duration of the symptoms, the presence or absence of adhesions and of secondary complications, and the number of gastric tumours in the different individual cases.

For the most recent details as to the surgical treatment of cancer of the stomach, Dr. Steven referred to a work just published by Dr. Guinard. His own opinion was that, while no doubt in some cases removal of the tumour might be successfully accomplished and life prolonged, the operation was still in its experimental and tentative stage; yet he was not without hope that, with improved methods of examination—by analysis of the gastric juice and examinations to ascertain the state of the gastric mucous membrane—diagnosis would yet be possible at an early enough stage to give success.

Physicians were often reproached by surgeons for not sending their cases for operation soon enough. It was, however, a matter of difficulty to determine the earliest moment at which it would be right to interfere, though in time this difficulty would probably be lessened. For example, in the cases under discussion, the duration of symptoms had varied from one to twenty-four months, and with all the diagnostic means at their command, it must have been very difficult to determine the right moment. Indeed, Dr. Steven thought that when the tumour was so big as to be easily manipulated during life, it was then too late for operation. He spoke also of the importance of adhesions and secondary involvements in relation to the question of operation, and of the difficulties of recognising those conditions during life.

With regard to gastrostomy and gastro-enterostomy for the relief of symptoms and prolongation of life, he had nothing to say against them, but one must remember that the mortality in those operations also is very high.

Six illustrative specimens were shown.

II.—ADENO-SARCOMA OF MAMMA OF DOG.

BY DR. FLEMING.

Dr. Fleming showed, under the microscope, sections of a tumour which he had removed from the mamilla of a male spaniel dog. The tumour had been present for some months, and when Dr. Fleming saw it first he was not sure if it were a malignant tumour or an abscess. He incised, and a brown grumous fluid escaped, such as is sometimes seen in ovarian tumours. The colour he regarded as due to blood, the tumour having probably been often hurt, as the dog was an active animal. As the wound did not heal he removed the tumour. It had been examined by Dr. Steven, who reported that it presented the characters of adeno-sarcoma to the naked eye and under the microscope.

III.—PAGET'S DISEASE OF THE NIPPLE; MAMMARY TUMOUR; SECONDARY NODULE IN THE BRAIN.

BY DR. FLEMING.

The patient was a woman, aged 59, who had been admitted to the Royal Infirmary last summer, and whose mammary gland had then presented an appearance fairly well depicted,

Dr. Flenning said, in the water colour drawing shown. On examination they had found a very hard and large lump almost immediately under the affected part, and there had been great enlargement of the axillary glands on the same side. The eczematous condition of the nipple had been noticed for ten years, and had begun as a pimple near the nipple, spreading all round until it had involved the nipple and areola; it had extended slowly, and had discharged a watery fluid. Two years before admission she had observed the lump in the breast, and it had gradually increased in size, but had been comparatively painless. It had been situated principally 2 inches above the nipple on the outer side.

The patient had never had any mammary abscess, or any particular trouble while nursing her family.

On admission, it had been specially noticed that she was dull and heavy when conversed with. This proved to be an important point. A few days after admission the mammary gland had been excised, and the axilla cleared out, the latter having been a very serious undertaking, as the large glandular masses were adherent to the sheaths of the vessels; the subscapular artery had to be ligatured and divided. There had been a good recovery made from the operation, in spite of some lung affection, possibly caused by ether used for anaesthetising. The wound had at first behaved well; latterly it had been less favourable, but had never caused any uneasiness. Eight days after the operation she had become restless, with a wild look in her eyes; this restlessness had gone on to such violent delirium that a strait-jacket had been used. Thirteen days after the operation she had died, as it turned out, from the cerebral tumour now shown. That tumour had caused less of local symptoms than might have been expected from its situation; no motor symptoms had been present.

Dr. Steven gave an account of the pathological aspects of the case. The mammary tumour had been found to consist of a loose areolar stroma enclosing nucleated cells, which readily fell out. The wound had healed up fairly well. The heart was dilated on both sides, and its muscular tissue was fatty. The coronary arteries, aorta, and mitral curtains showed well marked atheroma. The lungs were oedematous. The liver contained secondary nodules, whose structure was the same as that of the primary tumour. A secondary cancerous nodule, of the size of a hazel nut, had also been found attached to the dura mater and pressing on the posterior extremity of the middle horizontal convolution of the left

frontal lobe, producing a well marked depression.. The structure of this nodule was similar to that of primary tumour. So far as Dr. Steven could recollect, he had seen only one other case of secondary cancer involving the brain, and it also was from a primary mammary tumour.

Dr. Barlow asked if the eczematous part round the nipple had been examined microscopically.

Dr. Steven replied that it had not.

Dr. McCall Anderson said that he had a case of Paget's disease of the nipple in the Western Infirmary, whom he hoped shortly to show to the Society. The patient objected to surgical interference, and medical measures were being tried. The disease was of eleven years' duration, and was more extensive than it had been in Dr. Fleming's case.

Mr. Clark asked if there were any mammary tumour in Dr. Anderson's case.

Dr. Anderson replied that there was not.

Dr. Coats said that he happened to have seen several cases of secondary cancer of the brain connected with primary cancer of the lung, and he had the impression that primary cancer of the lung was peculiarly prone to produce cancer of the brain. Primary cancer of the lung was very rare; and, in proportion to its rarity, secondary cancer of the brain associated with it was very frequent. He should say that, in his experience, it was very much more rare to have secondary cancer of the brain from primary mammary cancer.

Mr. Clark would suggest that further examination should be made of the eczematous part, because they needed light on that subject.

Dr. Steven explained that they had been unwilling to injure the specimen, but both he and Dr. Fleming expressed their readiness to have this further examination made.

Dr. Coats thought that Paget's disease had been pretty well described in relation to cancerous tumours of the breast, and referred to Thin's work in that connection.

Mr. Clark considered that it had been so much described that it required a good deal of elucidation.

IV.—SARCOMATOUS INVASION OF TIBIA.

BY DR. RUTHERFURD.

Dr. Rutherford had to thank Dr. H. Cameron for permission to show this and the following specimen. The patient in the present case was 45 years of age. The tumour had been known to exist for eighteen months. It grew from the

periosteum of the upper third of the tibia. At the centre of its distribution on the tibial surface it had invaded the medullary cavity. It was by no means large considering its duration, and was firm and not diffuent, as such tumours often were. The microscope had shown it to be a large spindle-celled sarcoma, with a fairly regular arrangement of cells. The invaded portion of skin had ulcerated, the ulcer having sharp excavated margins, such as would suggest rather an epitheliomatous formation.

V.—MYXO-SARCOMA OF TIBIA.

BY DR. RUTHERFURD.

Dr. Rutherford, in showing this tumour, said that it had been removed by Dr. Hector Cameron, by gouging, from a man 28 years of age. The appearance of his leg before operation was seen in a photograph then taken. He had for five years been conscious of a swelling below the knee, but had come into hospital only because this swelling had been injured by a fall, which had cracked the shell of the tumour, and led to hæmorrhage into the tumour, and under the skin.

The tumour tissue was everywhere sharply demarcated from the bone. On reflecting the skin the tumour was found to have a more circumscribed base than had appeared. It was everywhere included, however, in a smooth bony shell continuous with the outer layer of the tibia. The shell of bone was occupied by a semi-transparent, firm, but gelatinous-like substance of a lemon-yellow tone. This also filled a cavity in the upper end of the bone. The microscope showed the tumour tissue to be myxo-sarcomatous.

Myxomata, Dr. Rutherford said, had been classified by Virchow along with enchondromata, but he was not sure whether Virchow meant that their histological resemblance meant also a resemblance in degree of malignancy. Dr. Rutherford thought that both occur with great variety of degree of malignancy, just as they both vary with regard to purity of histological type. The present tumour was pure histologically, and its malignancy was apparently very slight. At the end of five years it had still been no more than an indolent swelling of the size of an orange, partly within and partly without the shaft of the bone. Its appearance when fresh (compared sometimes to that of an oyster) had been lost in hardening.

The operation had been performed six months previously, and the cicatrix still remained sound.

VI.—RODENT ULCER TUMOUR.

BY DR. R. M. BUCHANAN.

The patient, a labourer, aged 30, was admitted to the Western Infirmary under Professor George Buchanan in December last. Sixteen months previously a pimple appeared in the face just external to the left ala nasi. It steadily increased in size to a rounded tumour under the skin, forming a mass almost the size of a pigeon's egg, and commenced to ulcerate eight days before excision.

The tumour after excision appears to the naked eye as a rounded firm mass with very well defined limits. Under the microscope there appear small epithelial-like cells arranged in indefinite masses, in elongated branching processes, and in a glandular form, supported by a stroma of connective tissue. A large area shows the degenerative process which takes place in this tumour—namely, "mucoid degeneration." In one of the sections under the microscope such an area is shown, in which the fibrous stroma is in some places faintly seen, and through which somewhat large cells, showing a network of processes, are sparsely distributed. The typical appearances of rodent ulcer structure are by no means prominent, but are quite distinctly to be seen in several parts of the tumour.

The opportunity of examining rodent ulcer in this early stage rarely occurs. The case, moreover, is of interest from the fact of the occurrence of the disease at the comparatively early age of thirty.

Dr. Coats thought the case of some importance as giving them an opportunity of studying rodent ulcer in an early stage. The tumour, as shown, was very different in its naked eye appearances from the current idea of a rodent ulcer, although there seemed to be agreement histologically.

Dr. Workman asked as regards the areas of degeneration in the tumour, saying that they appeared to him to be myxomatous.

Dr. Rutherford said that he had had an opportunity of seeing the sections before hearing the clinical history of the case, and that he had thought the microscopic appearances those of rodent ulcer. As regards the difference to the naked eye between the present tumour and the usual form of rodent ulcer, they had to remember the alterations brought about by ulceration, and that the fact of ulceration was more or less determined by accidental circumstances. The early stage of every rodent ulcer was something of the nature of a tumour.

Dr. McCall Anderson spoke of the course of a rodent ulcer. It began like a pea set into the substance of the skin and then extended. A depression then occurred in the centre, and thus a ring was formed. Subsequently some irritation led to ulceration, affecting principally the central part.

Mr. Clark considered that the tumour had no epidermal connection, and that it did not look like a tumour of the skin or of an epithelial type. It had not the appearance of rodent ulcer as usually understood.

Dr. Steven said that microscopically the appearance was like that of rodent ulcer.

Dr. Coats suggested that a committee be appointed to investigate the growth and report. This was agreed to, and *Dr. Dalziel*, *Dr. Nicoll*, and *Dr. R. M. Buchanan* elected to form the committee.

VII.—LUNG FROM CASE OF PNEUMONIA SHOWING “PNEUMONIC ABSCESS.”

By *Dr. R. M. Buchanan*.

Martha J., aged 19, domestic servant, was admitted to *Dr. McCall Anderson's* ward, suffering from pneumonia, on the fifth day of illness, and died on the seventeenth day. In the later stages of the illness very loud moist râles developed over the affected lung (right), and percussion gave a note of a hollow quality over the apex in front. The expectoration became very purulent and profuse.

The following is an abstract of the *post-mortem* report on the condition of the lungs:—

The right lung is adherent all over by recent exudation. It weighs 34 oz. The lung is consolidated throughout, and there are some irregular bulgings of the pleura at the apex and the base posteriorly from abscess formation. Over the apex of the upper and the base of the middle lobe a patch of pleura about the size of a halfpenny piece is necrosed; in the latter situation the patch shows a perforation through which a probe may be passed, to emerge by a bronchial tube. There are, besides, three small perforations in the posterior aspect of the lung, about the middle, communicating each with a small abscess.

A longitudinal section from apex to base displays in the apex a group of abscesses, each about half an inch in diameter, and very distinctly limited by a thin whitish-yellow wall or “pyogenic membrane.” The tissue just underlying the piece of necrosed pleura in this situation has a somewhat

gangrenous appearance. The remainder of the cut surface presents the appearance uniformly of grey hepatisation. The tissue is, however, very tough, and not friable. Sections of the lung in various planes reveal a considerable number of abscesses, with the characters already mentioned, scattered through the upper and middle lobes, and a group in the posterior part of the lower lobe. A few of the abscesses are proved to be continuous with the bronchial tubes.

Careful examination is made for a possible source of infection, or circumstance which might afford a clue to the explanation of the condition, but nothing of a definite nature is found. It is to be mentioned that one of the maxillary antra is filled with muco-purulent material.

Microscopic examination of the lung tissue showed the alveoli filled with inflammatory products undergoing resolution.

The *left* lung is free from adhesion. It weighs 23 oz. It is voluminous, and the natural crepitus is largely wanting. Purulent matter is expressed from the bronchial tubes, which are notably hyperæmic. An area in the posterior aspect opposite the root presents a degree of condensation, greyish purulent matter exuding on slight pressure. The appearance presented by this area is that of insufflation-pneumonia.

Pneumonic abscess, as seen in this case, is of very infrequent occurrence. Green, in *Quain's Dictionary of Medicine*, mentions abscess as a rare termination of pneumonia, and as occurring more commonly in the upper than in the lower lobes. Sturges and Coupland, in the recent edition of their work on pneumonia, state that it was found in but one case out of 144 examined after death. In that case the abscess was seated in the lower lobe of the right lung, and had set up pneumo-thorax by perforating the pleura. There were patches of red and grey hepatisation in the upper and middle lobes. The description of the condition given in the latter work is perfectly applicable in the present case. "A true pneumonic abscess," it is said, "is a circumscribed collection of pus which may become limited by a definite pyogenic membrane in the midst of hepatised tissue." The precise cause of its formation, it is further stated, is really unknown.

VIII.—CYSTIC DISEASE OF EPIDIDYMIS.

By DR. DALZIEL.

The report of this case, from which the specimen was shown, is as follows:—

J. H., aged 60, engine keeper, was admitted on 17th August, 1891, to Western Infirmary. First noticed swelling of right epididymis about twelve months before. It was then about the size of a sparrow's egg, and slowly increased in size. About a month ago it was tapped by a doctor outside, and reduced to half its size, clear fluid being withdrawn and some iodine thereafter injected.

On admission, examination showed the presence of a tumour two-thirds the size of the testicle; light passed through; it was evidently divided into cysts, as at least four divisions could be felt. It occupied the position of the *globus major*. The testicle was not atrophied.

19th August.—Cysts and testicle removed.

Pathological Report.—Median section (vertical) made six weeks later after hardening; spermatozoa in one of the larger cysts.

After injecting and hardening, a vertical antero-posterior section was made through the testicle and cystic mass surrounding it. The whole epididymis is found to be converted into a mass of cysts; there are two large cavities, the larger of which is uppermost, and is about the size of a walnut. The rest of the epididymis is represented by a honeycomb-like mass of cells of various sizes, from that of a pea downwards, separated by very thin translucent walls, there being no solid tissue here at all.

The structure of the testis does not show any alterations to the naked eye. Among the *debris* in the cysts were found spermatozoa.

Dr. Dalziel remarked as to the rarity of the case, and as to the danger of the condition being mistaken for hydrocele, as had been done by the doctor outside, who, however, had found that he could not remove the whole of the fluid.

Some discussion took place as to the origin and exact classification of the tumour; in it, part was taken by Dr. Coats, Mr. Clark, Dr. Rutherford, Dr. Nicoll, and Dr. Dalziel, considerable difference of opinion being expressed. Dr. Dalziel mentioned as reasons for the removal of the testicle that it was useless, and was the seat of great pain, which they had not been able to relieve either by tapping or by bandage.

IX.—FEMORA FROM A CASE OF ARTHRITIS DEFORMANS.

BY DR. CHAS. WORKMAN.

The specimens shown by Dr. Workman were obtained *post-mortem* from the body of a man aged over seventy years.

The head of each femur showed a moderately advanced arthritis deformans. In the left the neck was almost in the same line as the rest of the bone; in the right the neck was almost at right angles, and there had been eversion of the foot. In connection with this latter fact, it was mentioned that a diagnosis of impacted intracapsular fracture had been made during life.

Mr. Clark pointed out that the cartilages were irregular on their surface and eroded, but that that was not uncommon in old people. He remarked, too, that the shortening of the angle of the neck of the femur was not confined to women, as was sometimes believed, but was seen also in men.

GLASGOW SOUTHERN MEDICAL SOCIETY.

SESSION 1891-92.

MEETING III.—5TH NOVEMBER, 1891.

The President, DR. ALEX. MILLER, in the Chair.

NOTES OF CASES OF INTRA-THORACIC TUMOUR, HEREDITARY SYPHILIS, LARDACEOUS LIVER, AND XERODERMA PIGMENTOSUM.

BY PROF. M'CALL ANDERSON.

J. M., æt. 50, stableman, was admitted to the Western Infirmary, on 10th September, 1891, complaining of pain in the throat and chest, also of hoarseness of six months' duration.

His father died of a lung complaint, æt. 73, and his mother of a stomach affection.

Patient is unmarried, and has been a healthy man all his life, till the commencement of his present illness, last winter.

He has been engaged in stables ever since he began work, and attributes his illness to a cold he caught while washing carriages on a wet night, during last December. Afterwards, while drenched, he had to wait for a couple of hours the arrival of a party, whom he had to drive somewhere. He was very cold, and on going home he had a severe shivering and headache. In the morning he was very hoarse, and was confined to the house for a fortnight, during which time he fomented his throat, but without alleviating the hoarseness much. It has never left him since, but it varies greatly,

and at times he can hardly speak. His throat was not painful on swallowing, and there was no visible swelling. He had pains in the upper part of his chest in front and behind, but cough was not troublesome, except in the morning, when it was accompanied by a frothy expectoration. At other times his cough was usually dry. He has felt very weak ever since this illness began, and on this account had to give up work. He has lost a good deal of flesh, and sweats a good deal at night, but he states that he was always in the habit of perspiring freely.

Appetite good, bowels slightly costive, has not latterly been troubled with headaches, but during the first fortnight of his illness he had a very severe one, confined to the right temple. He has pain when he swallows or bends his head forward, it being situated on both sides, along the anterior edges of the sterno-mastoids to the root of the neck. He feels as if there were something lying deep down at the root of the neck. He has pain also, more severe and more continuous over the manubrium sterni, and also above the middle of the clavicle on both sides, but more severe on the right, which he feels especially when he is walking about. He sometimes has pain between the shoulders at the level of the spine of the scapula. All these pains are of much longer duration than the hoarseness. He has felt most of them for two or three years, the one between the shoulders being the first by a long way. In the front of the chest, on the right side, there is deficient movement and dulness on percussion. The heart is displaced, the apex beat being felt half an inch to the left of the nipple line. The veins of this side of the chest and right arm are distended, showing obstruction to the circulation.

The throat was examined, and paralysis of the abductor and adductor of the right vocal chord was found. The ventricular bands were thickened, and on the left chord there was a cicatrix due to healed ulceration.

On examination, the glands in the right side of the neck and in the right axilla were found to be enlarged close to where the tumour was supposed to be. Scars of round shape, and brownish in colour, were found on the legs and right iliac region. For these reasons Dr. Anderson came to the conclusion that the tumour was syphilitic, and this view was strengthened by the fact that the pain in the chest was much worse at night. The patient suddenly left the hospital, but during his residence he was treated by inunction of a drachm of mercurial ointment daily.

The next case which Dr. McCall Anderson brought before the Society was one of late hereditary syphilis in a girl of 14 years of age, with ulceration of the nose.

Both of her parents are alive and in tolerably good health, though her mother appears delicate, and has a dirty earthy pallor. Patient is one of a family of eight. With one exception all of these are alive and well, though a brother, æt. 6, has suffered from enlarged and suppurating glands in the neck for the last year. The youngest is 8 months old. A still-born child immediately preceded the birth of the patient.

She has never been robust, and as an infant suffered from "snuffles." No eruption was ever observed on her body or on any of the brothers or sisters. She had measles at 18 months. During teething, which was delayed for two years afterwards, she suffered from purulent discharge from both ears. No return of this occurred till ten months ago, when the discharge again appeared. Since then she has gradually lost her hearing. For some months she was wholly deaf, but of late she has been able to hear with the right ear. Associated with the discharge and loss of hearing, swelling of the glands of the neck, which had persisted, was first noticed. Seven years ago her eyesight began to fail, and gradually became worse and worse. For three months she was stone-blind, but vision gradually returned. Two years ago she was troubled with cough and expectoration, lasting for some months. On one occasion, for a week, she had small quantities of bright red blood in the sputum. This was never seen before nor since. Four months ago, discharge from the nostrils was first noticed, associated with overpowering fœtor. The discharge was mainly purulent, and in time became inspissated, being passed in the form of thick, darkish-green, very offensive crusts.

The first external evidence of disease was seen in the septum, which was very soon destroyed. Ulceration then attacked the nose proper, spreading with some rapidity at first on to the upper lip, till about one month ago, when its present dimensions were attained. Crusts of a dark, sometimes greenish, colour form from time to time, and are shed, disclosing a coarsely granular surface. No pain or itching is complained of in the patch.

Dr. Anderson showed the patient, and drew attention to the interesting points in the case. The ulceration of the nose was entirely healed. Scars were noticeable at the angles of the mouth, and patient had a large forehead. The corneæ were muddy, the sight had recovered, but she was almost blind in

childhood. The two permanent upper teeth were notched, rounded at the angles, and narrow at the base instead of being broad. The eruption on the nose was only of four months' duration, and this was in favour of syphilis, as strumous disease was of longer duration. Patient had snuffles in infancy, and her mother had an earthy pallor of skin. During teething patient had ear discharge, loss of hearing, and swelling of neck. Seven years ago she lost sight, and was totally blind for three months. Taking all the symptoms of the case together, Dr. Anderson concluded that the case was one of syphilis. Koch's treatment was tried, but did no good. The patient quickly improved with cod liver oil, and the inunction of mercurial ointment.

The next case which Dr. Anderson showed was a young man with lardaceous liver and kidneys, with jaundice.

Patient was 33 years of age, and had suffered from muddiness of the skin of six months' duration, and of a skin eruption on the buttocks, thighs, legs, and fore-arms of twelve months' duration.

The family history was good, with the exception that his father died of "dropsy," which "started in the legs, and went up."

When a child he had scarlatina and inflammation of the lungs. From infancy up till 8 years old he had "falling sickness;" had also, within this period, three attacks of paralysis, the particulars of which he does not know much about. He remained free from fits till six years ago, when they returned, and lasted for one year. He states that he would suddenly drop down without any warning, and on coming to would find his friends supporting him. These attacks occurred at intervals of three weeks, and were followed by headache, which lasted until he had had a free perspiration. He also felt sleepy, and disinclined for work for sometime after each. Under treatment, he recovered from this ailment, and has not since been troubled with it. About twelve months ago his legs became the seat of great "heat," especially when warmed up in bed at night. He scratched the heated parts and "spots" appeared. These were at first white, but became red subsequent to scratching. They were so itchy that he felt as if he could have torn the skin. The eruption gradually spread to the thighs and buttocks, and also appeared on the fore-arms, hands, and between the fingers. On scratching the spots they use to bleed. His meal hours were irregular, and he had often to bolt his food, which, how-

ever, was always of good quality. His bowels were inclined to be costive. Six months ago he began to notice that his skin was turning of a yellow colour; previous to this the urine was very dark. After this colouration of the skin began, the bowels became somewhat costive, but he states that at present they are quite regular. He states that his stools, which were formerly always normal as regards colour, were now sometimes quite white and clayey, and had an offensive odour. His mother also remarked his dislike to fat meat, which he had hitherto taken with relish. Five weeks ago he had an attack of inflammation of the left lung, from which he made a good recovery. During the pneumonia, the tinging of the skin became deeper, but it lessened a little on his recovery. At this time, also, he had one night a severe cutting pain across the umbilical region. This lasted uninterruptedly all through the night, and was relieved by purgative pills. It has never returned. He is troubled with an irritating cough, and has been taking cod liver oil for it for the last two or three years. He stopped taking the oil a fortnight ago owing to its having caused diarrhoea. He also had diarrhoea at the time that the yellowness of the skin appeared, and for eight months he has been troubled with frequency of micturition, having to rise as a rule twice during the night. He states that latterly his urine has become paler than it was at the beginning of his complaint. He denies having had venereal disease, and has never been abroad.

In showing the case, Dr. Anderson first spoke of the jaundice. In this case the skin discolouration was more intense than the colour of the urine. This was a case of non-obstructive jaundice. The stools were sometimes coloured, and the jaundice was not intense. The liver was uniformly enlarged and painless, and there was slight enlargement of the spleen. Dr. Anderson thought it a case of amyloid disease. Patient for a year had to get up through the night to make urine frequently. The amount of urine was increased, and it was slightly albuminous. The cause of the amyloid disease was uncertain. Patient had no suppuration, and there were no traces of syphilis, though, according to Hilton Fagge, the patient was at the age when amyloid disease from syphilis was most common. The treatment was 10 to 20 minims of tk. iodine thrice daily, and good food.

The next case, which Dr. Anderson showed, was one of xeroderma pigmentosum. The patient, a boy, æt. 9, came under Dr. Anderson's notice on 13th June, 1887, with an

eruption on the face, neck, fore-arms, hands, legs, and feet. His father and mother were in good health, but his only sister was similarly affected, and died, æt. 9, of some chest affection. Ten months after the onset of the symptoms with freckles on face, neck, arms, and legs, new features appeared on the face, and on it alone—(1) little reddish vascular spots, (2) cicatricial spots, and (3) here and there small warty-looking nodules.

This disease ran in families, and generally attacked the same sex, but in this case patient's sister had been affected with it. There is difference of opinion as to the nature of the nodules. Dr. Anderson found them in this case to be epitheliomatous. The treatment was to remove the crusts and apply salicylic plaster. When this treatment was adopted in this case, some improvement took place. Now the fungating sores have made their appearance, which are being sponged with bichloride of mercury lotion, then dried, and dusted with equal parts of aristol and starch. This combination does well for dusting cancerous masses.

Dr. John Lindsay Steven was greatly interested in the cases. He had seen the case of xeroderma pigmentosum some years ago when acting as one of Dr. Anderson's clinical assistants. It was interesting to note the extensive development of the disease that had since taken place. Dr. Steven had lately made a special study of mediastinal tumours. One point of importance in the diagnosis between mediastinal tumour and aneurysm, which had been brought out in Dr. Anderson's case, was that in the former the right vocal cord might be affected, whereas in aneurysm it was almost never involved for obvious anatomical reasons. Pressure upon nerves takes place in cases of solid tumour as well as in aneurysm, and perhaps a good deal more frequently than one would at first sight suppose. Syphilitic tumour of the mediastinum was rare, but in the case shown at the meeting the history of syphilis seemed to be very conclusive. The presence of glandular enlargement on the same side was rather in favour of the tumour being other than syphilitic. In syphilis one would expect general glandular enlargement. He was convinced that in malignant cases enlargement of the glands in the immediate neighbourhood was of importance in diagnosis.

Dr. Parry asked if a syphilitic history had been got in the case of tumour. He quoted cases where no specific histories could be got, but where healing took place rapidly, under anti-syphilitic treatment.

Dr. Pollock thanked *Dr. Anderson* for his paper. With regard to the case of nasal disease, he had found destroying the disease with chloride of zinc, and covering the surface with iodoform in traumaticine, with constitutional treatment, to answer admirably. It would be interesting to watch the case under treatment with tincture of iodine.

Dr. M'Murray asked if because a tumour disappeared when iodide of potassium was given, was it necessarily syphilitic? He thought some authorities denied this.

The President thanked *Dr. Anderson* for his paper, and *Dr. Steven* for giving his experiences.

Dr. Anderson, in reply, said that Koch's injections in external tuberculosis were valuable. He thought we did not use the injections properly. Very small doses should be given, increased slowly, and spread over a long period of time. He had tried Koch's treatment in cases of lupus, with gratifying results. In reply to *Dr. Parry*, there was often a trifling sore, and nothing else till the tumour appeared. If syphilis were suspected, one should not be carried away by absence of syphilitic history. Always give the patient the benefit of the doubt, and try treatment. In answer to *Dr. M'Murray*, he thought that if tumours disappeared when treated with iodide of potassium, they were syphilitic.

Dr. Anderson was assisted in the demonstration of the cases by his house-physician, *Mr. Edington*.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

NERVOUS DISEASES AND INSANITY.

BY *DR. R. S. STEWART.*

Eighteenth Annual Report of the Govan Asylum.—The high recovery-rate, during 1890, of 53·4 affords an illustration of how that rate is affected by the character of the admissions. Of these last, nearly 70 per cent were first attacks, and of less than three months' duration. The admissions to asylums generally are seldom so favourable, hence the lower recovery-rate; and if the idea of a hospital for selected acute cases were carried out, the recovery-rate would undoubtedly be greatly increased, owing, to a very large extent, to the reason above mentioned.

Sixty-Fourth Annual Report of James Murray's Asylum, Perth.—Full advantage has already been taken of the improved hospital accommodation recently provided at this asylum, and the working qualities of

the new buildings are found to be efficient in every respect. There are many interesting and well-timed remarks in Dr. Urquhart's report. Speaking of the causes of insanity, he points out that "it yearly becomes more manifest that some inherited constitutional tendency to the more obvious forms of mental disease, or a mere nervous instability, is a fundamental necessity in the evolution of these disorders," and that "calamity or other undue excitement merely gives the last impetus to an already overburdened nervous system." The recovery-rate of 39·58 per cent on the total number of admissions is up to the average of similar institutions, and shows, in Dr. Urquhart's opinion, probably as favourable a state as can be attained under existing conditions. "I cannot believe," he says, "that it is possible to materially improve the recovery-rates in asylums so long as they are (rightly) asked to deal with the flotsam and jetsam of humanity, and so long as the outside world manages its affairs on present lines."

Second Annual Report of the Derby Borough Asylum.—At the end of the year 1890 this asylum contained 264 patients. The recovery-rate for the year is a very satisfactory one, being as high as 46·1 per cent of the admissions. The death-rate of 14·8 per cent of the average number resident is considerably above the rate for county and borough asylums generally. Epilepsy, directly or indirectly, accounted for 38 per cent of the deaths, the high mortality among patients suffering from this form of disease being very largely due to a low form of pneumonia supervening on influenza. The cause of death was ascertained by necropsy in every instance.

Intracranial Tumour, with Absence of Diagnostic Symptoms. By Burr (*American Journal of Insanity*, April, 1891).—This is the case of a female patient aged 66, admitted to the Eastern Michigan Asylum suffering from dementia with mental elation. Five months prior to her death a small swelling appeared over the right frontal eminence, and this increased rapidly, remaining hard and non-fluctuating. Two weeks after its first appearance pain in the face was complained of, and five days later ulceration occurred, with considerable discharge of pus. A month after the appearance of the swelling she was operated upon, and a tumour was found which had its origin within the skull, and had penetrated the frontal bone. Part of the growth was removed, and proved to be a "giant-celled medullary carcinoma;" but further extension of the growth took place rapidly, with free secretion of pus, recurring attacks of syncope, nausea and vomiting, and discharge from the nostrils. At the autopsy the growth was found to have arisen from the anterior surface of the dura, produced a large irregular perforation of the frontal bone, and involved the first right frontal convolution. The peculiarity of the case is the entire absence, prior to the appearance of the swelling, of any symptoms suggestive of intracranial growth.

Insanity in Twins. By Worcester (*American Journal of Insanity*, April, 1891).—Twin brothers of Dutch parentage, whose mother had been rather weak minded, and who were always below par intellectually, became mildly depressed—the one at about 22, the other at 24 years of age. In one there were recurrent attacks of excitement; but, in both, dementia ultimately supervened, and they both succumbed to phthisis within a little more than a year of each other.

Therapeusis of Mental Diseases by means of Hypnotic Suggestion. By Seppilli (*American Journal of Insanity*, April, 1891).—The following are the conclusions arrived at in this article (translated from the *Archivio Italiano*):—

1. Therapeutic hypnotic suggestion cannot be instituted as a general means of cure in the treatment of mental diseases, owing to the difficulty of hypnotising the insane.

2. Hypnosis succeeds most readily in the hysterical and epileptic.

3. The most certain results have been obtained in the psychoses depending on hysteria and dipsomania.

4. Hypnotic suggestion may be employed when the insane submit to it of their own accord, and derive benefit from it. Its use requires caution.

5. Therapeutic suggestion made in the waking state is the most reliable and effective means of cure in mental diseases, and to it almost solely are due the beneficial effects of the asylum which represents a real suggestive surrounding.

6. In cases of melancholia without delirium, cases of fixed ideas, alcoholism, and slight forms of stupor, suggestion methodically repeated in the waking state, in order to combat the morbid phenomena, may prove effectual.

7. In the chronic forms of paranoia suggestion has never given favourable results.

Some Points regarding General Paralysis. By Folsom (*American Journal of Insanity*, July, 1891).—The symptoms and diagnosis of general paralysis during its early stage are mainly considered in this paper. This stage is divided into two periods called by the writer (1) the prodromal, (2) the initial. The symptoms of the first are vague and indeterminate, and resemble those of cerebral asthenia without the so-called neurotic element. Occasionally there are observed quickened wits, blunted moral sense, and slight exhilaration. As a rule, subjective symptoms and vasomotor disturbances are much less marked than in cerebral neurasthenia. In the diagnosis between these, the age of the patient and a previous history of syphilis are important factors. Under thirty, except when there has been recent syphilis, and over fifty-five, general paralysis can, as a rule, be excluded. The commencement of the initial stage is marked by the appearance of motor symptoms, general muscular weakness, failure in adjusting skill, inco-ordination and speech embarrassment, and the further progress of the affection is marked by symmetrical motor and psychic deterioration, varying from time to time and sometimes temporarily disappearing.

A Plea for the Scientific Study of Insanity. By J. Batty Tuke. (Young J. Pentland, Edinburgh, 1891.)

Some Notes on the Present State of Psychiatry. By Henry P. Stearns (*American Journal of Insanity*, July, 1891).

The subject dealt with in these two addresses is practically identical. It is generally admitted in this country, and the same would apparently apply to the United States, that there has been and is a lack of union between the specialty of psychiatry and general medicine, and the object of both these writers is to direct attention as to why this is so, its consequences, how it may be remedied, and what may be expected to result from a more intimate alliance. Expressing as they do the views of two specialists of eminence, there is much in these papers that is of the deepest interest, and worthy of the consideration alike of the public, the profession generally, and the specialist. Dr. Tuke holds that the main reason for this condition of affairs is that the study of insanity has been dominated almost exclusively by psychology, to the exclusion of anatomy, physiology, and pathology, and that the treatment of cerebral diseases of which insanity is a symptom, to be other than empirical, must be based upon an intimate knowledge of the underlying morbid processes, and especially of those conditions as they exist in the initial stages, and of which we at present know so little.

Sulfonal as a Sedative and Hypnotic. By Johnstone (*Journal of Mental Science*, January, 1892).—The conclusions arrived at from the observation of 50 cases are: that sulfonal in properly regulated doses is an efficient hypnotic, fairly certain and constant in its action; the sleep produced is natural and tranquil, and undisturbed by dreams; it has no injurious effects on the circulation, respiration, digestion, or general health; it has a distinct sedative action in mental excitement or distress, and is especially

useful in recent and acute cases of insanity ; its chief disadvantages are its slowness and prolongation of action, and the induction of drowsiness, confusion, giddiness, or fatigue, and, after repeated doses, some serious cerebral and motor symptoms.

Rupture of the Left Ventricle of the Heart. By Bruce.

Rupture of the Heart occurring in a Melancholiac. By Nash (*Journal of Mental Science*, January, 1892).

The first case is that of a man of 70, subject to periodic attacks of excitement. The heart's action was usually steady and regular, but towards the end of the excited periods it became rapid and feeble. A mitral presystolic murmur had existed for some years. Death occurred suddenly when he was excited, and necropsy showed enlargement of the heart, with fatty deposit, degenerated muscle, atheromatous and dilated aorta, and a rupture, one inch long, of the anterior wall of the left ventricle, two inches from the apex.

The second case is a woman aged 64, suffering from melancholia, who presented a systolic mitral murmur with feeble cardiac action. On the seventh day of an attack of acute pneumonia she was suddenly seized with extreme dyspnoea, and two days afterwards death occurred suddenly. The heart was fatty, and a rupture, a quarter of an inch long, was found in the posterior wall of the left ventricle, just above the apex. The condition of the coronary arteries is not mentioned.

PATHOLOGY AND BACTERIOLOGY.

By R. M. BUCHANAN, M.B., C.M.

On the Laws of Contagion from a Clinical Standpoint.

Hutchinson (*Medical Chronicle*, November, 1891).—In an address delivered at a meeting of the Manchester Medico-Clinical Society, Mr. Jonathan Hutchinson submits a critical examination of the laws under which inflammation exercises its powers of infection. All the various forms of the inflammatory process are attended by the production of something which is capable of spreading that process. The only exceptions to this statement with which the author is acquainted are those mysterious inflammations in which the peripheral nerves are concerned, and of which herpes and morphea are the types, and probably almost the sole examples. In these, by a nearly invariable rule, nothing of the nature of infective spreading ever takes place. The extent of the disease is declared at the onset, and no advance is ever afterwards made. In all others, whether the local process be due to injury, to the presence of a cryptogam or a burrowing insect or to an animal poison ; whether the type assumed be erysipelatous or urticarial, eczematous or furunculoid ; whether the resulting malady be called diphtheria, pleurisy, pneumonia, or carbuncle, there is risk of infective spreading.

The Influenza Bacillus. Pfeiffer and Canon (*Berlin. Klin. Woch.*, 11th January, 1892).—At a meeting of the Gesellschaft der Charité-Aerzte held in the new Institute for Infectious Diseases on the 7th January, Dr. Pfeiffer, head of the scientific department of the Institute, and Dr. Canon, assistant in the Moabit Hospital, demonstrated respectively from the sputum and from the blood of influenza patients a specific microbe constantly associated with the disease, and capable of producing it experimentally.

In the sputum of typical cases Dr. Pfeiffer found extremely small bacilli—the smallest known—unmixed with other kinds, and showing the peculiarity that the ends of the little rods stain more deeply than the middle. This gives them the appearance of diplococci, and when joined end to end they might be mistaken for streptococci. On agar or glycerine-agar growth readily takes place in the form of extremely small clear colonies, and cultivations can be carried on through a large number of generations. The bacilli were

found also *post-mortem*, in a number of cases, in the contents of the bronchial tubes, in peri-bronchial infiltration, and in pus from the pleural cavity. In the sputum of all the cases examined (34) characteristic bacilli were found, while in other affections they were not discoverable. Dr. Pfeiffer has a photograph of influenza sputum from the epidemic of 1889 in which the organism can be seen together with another which was at that time incorrectly thought to be the germ of influenza. The bacilli are to be found only at the height of the disease. Experimental inoculation of animals, some with the agar culture and some with the sputum, yielded positive results in monkeys and rabbits.

Dr. Canon found the same micro-organism in the blood of 17 cases out of 20 examined during the febrile stage. It appeared as an extremely short bacillus when stained with a strong solution, and like a diplococcus with a weak solution. The preparations were stained with an eosin-methylene blue solution three to six hours, at a temperature of 37° C. Dr. Canon's preparations were submitted to Drs. Koch and Pfeiffer, who recognised the identity of this bacillus with that in the sputum.

A Case of Congenital Tuberculosis.—Sabourand publishes the following case of congenital tuberculosis in *Médecine Moderne* of 29th October, 1891 :—

The mother was a patient in St. Antoine obstetric wards. The apices of both lungs were dull, and signs of softening were heard over the left apex. The child, a girl, was born on the 5th of August, and was of normal weight and size. The mother made a good recovery, and was dismissed on the 15th August. The placenta had not been examined microscopically. When five days old the infant had a conjunctivitis, more serous than purulent, which disappeared under treatment with nitrate of silver. On the ninth day it seemed ill, and though feeding well, had a little diarrhoea. Next day it became cyanotic, and fine râles were heard over both lungs. No convulsions nor other symptom preceded death, which occurred on the morning of the eleventh day. The liver and spleen only were examined *post-mortem*. The liver was normal in size, weight, and colour, without peri-hepatitis. It was riddled with tubercles varying in size from 1 to 2 millimetres, and equally distributed throughout its entire thickness. The spleen was small, hard, contracted, with the capsule thickened, and was studded throughout with tubercles of various sizes, some as large as 1 centimetre in diameter.

Microscopic examination of the liver shows that there is no trace of normal lobulation, the cells being agglomerated between the tubercles. Some tubercles are as large as a lobule, and the centre of the former seems to coincide with that of the latter, the vein being sometimes recognisable. The histology is similar to that observed after experimental inoculation: the blood-vessels are primarily affected, the nuclei being most abundant round the arteries. The bacteriological examination of the liver showed multitudes of bacilli, chiefly intra-cellular. The stain used was Ehrlich's anilin gentian violet, with safranin as a contrast stain. With the spleen, Ziehl's solution with nitric acid showed the bacilli to be present in great numbers.

The mother died two months after the birth of the child. The pulmonary condition progressed rapidly, and meningeal symptoms with coma set in before death. *Post-mortem* examination showed no evidence of tubercle in the breasts or sexual organs. The lungs were permeated with tubercle, but there was no cavity.

The questions as to the date of infection of the child and the mode of invasion are the most important. The *post-mortem* appearances of the liver are similar to those seen in congenital tuberculosis of the lower animals, and may be accounted for by the fact that during intra-uterine life the blood is, one might say, filtered through the liver. The age of the child at death and the advanced nature of the lesions show the infection to have been intra-uterine. The splenic condition shows the disease to have been a blood infection.—A. N. M'G.

DISEASES OF THE THROAT.

By JOHN MACINTYRE, M.B.

Guarded Laryngeal Forceps.—At a meeting of the British Laryngological Association, Dr. Dundas Grant described a guarded laryngeal forceps of his design. He described it as a Mackenzie's cutting-forceps, to the end of each blade of which was hinged a prolongation, also with cutting edges. These prolongations were joined together at their distal extremities. The result was, that when the forceps were opened, by separating the handles, the blades proper opened like the limbs of the letter A, the prolongations, on the other hand, like those of the letter V. There was thus formed a lozenge-shaped space into which an outgrowth readily slipped. It would be easily seen that the instrument could be passed into the larynx with perfect safety. It was intended for the removal of growths projecting into the glottis from the sides of the larynx, not for those on the upper surface of the cords. The instrument was made in two forms, one with lateral, the other with anterior and posterior blades.—(See *Journal of Laryngology*, December, 1891.)

Etiology of Diphtheria. Baginsky (Berlin).—In 93 cases of diphtheria Löffler's bacillus was found in 68 cases, equal to 73 per cent. Of these 68, 27 died. In the 25 cases in which the bacilli were not found, but which, microscopically, gave indications of diphtheria, only 1 died.—(*Archiv. für Kinder.*, Berlin, Nos. 1, 3, 4, 5, 6.)

Treatment of Tubercle by Cantharidate of Potash.—Dr. Polyak of Buda Pesth showed a patient lately suffering from tubercle of the larynx and lung. He made injections of 0·001-0·002 centigrammes. Considerable improvement was noticed in the larynx afterwards, but strangury, headache, and fever set in. Dr. Rennenkampf has treated sixteen cases of pulmonary tuberculosis with these injections. In six of these phthisis laryngea existed. In some improvement had been noticed, but in other cases the result was doubtful.—(*Gesellschaft der Ärzte*, Buda Pesth, September, 1891.)

Phthisis Laryngea.—Prof. Berneuil, at the Paris Congress on Tuberculosis, recommended the use of iodoform internally and locally. Toxic effects are guarded against by the examination of the urine every two days. He injects about 15 minims of a 5 per cent ethereal solution of iodoform into non-suppurating tuberculous glands. For broken-down glands he employed aspirations, followed by injections into the cavity of the iodoform solution.—(*Paris Correspondent Lancet*, 22nd-29th August, 1891.)

Treatment of Diphtheritic Angina by Cyanide of Mercury. Dr. de Ruelle.—The author recommends cyanide of mercury internally, according to the following formula:—

Cyanide of mercury,	. . . . .	0·05 centigrammes.
Alcohol at 80,	. . . . .	8 grammes.
Distilled water,	. . . . .	192 „

He makes note of seven children, from two to four years of age, all of whom recovered. The treatment should be instituted at the earliest stage of the disease.—(*Congrès de Marseilles*, August, 1891.)

Deviations of the Nasal Septum. By Prof. Mayo Collier.—Those interested in the etiology of this important pathological condition will find an excellent résumé on the subject by Prof. Mayo Collier in a paper read at the British Laryngological Association on the 27th November, 1891. The paper is not by any means a résumé only. The author demonstrates his own theories

with regard to the causation and its effects. He maintains that if one nostril be blocked up from whatever cause, the air in that nostril is rarefied by the inspiratory act; and if rarefied, the walls of the cavity are subjected to a pressure exactly in proportion to the amount of rarification. Long continued pressure in a direction at right angles to the nasal septum can hardly fail to push in the thin inner wall at its weakest point.—(See *Journal of Laryngology*, November, 1891).

New Literature.—Arellis (Frankfort), "*Cursus der laryngoscopischen und Rhinoskopischen Technik.*" (Berlin: Fischer, 1891.)

Bresgen, "*Krankheits und Behandlungslehre der Nasen Mund und Rachenhöhle sowie der Kehlkopf und der Luftröhre.*" Second Edition. (Wien and Leipzig, 1891.) Practically a new book.

M'Bride, "Diseases of the Throat, Nose, and Ear."

DISEASES OF THE EAR.

BY DR. WALKER DOWNIE.

Remarks on Cases of Adenoid Vegetations. By James R. Ball, M.D.—In this paper, read at a meeting of the Brixton Medical Society, Dr. Ball based his remarks on 150 cases treated by himself. This condition, as is now very generally known, consists of hypertrophy of the collection of adenoid tissue normally present in this region, and which is known as the pharyngeal or Luschka's tonsil. This tonsil may become hypertrophied in the same way as the better known faucial tonsils frequently are, and as the naso-pharyngeal space is somewhat limited, this tonsil, when enlarged, interferes with nasal respiration, and with the functions of the Eustachian tubes.

It is a disease of childhood, frequently congenital, and is frequently associated with enlargement of the faucial tonsils. Mouth breathing is a consequence, accompanied by snoring at night; and during sleep, as a result of interference with free respiration, we may have "suffocative attacks," restlessness, and "night terrors" complained of. Deafness and other symptoms referable to the ear, as pain and otorrhœa, resulting from interference with the Eustachian tubes, are also frequently associated with this condition. More or less want of resonance in the voice is always present.

The space may be examined by mirrors (a difficult and unsatisfactory method), or by the introduction of the index finger, by which the site and character of the obstruction is readily made out. Dr. Ball recommends removal by means of post-nasal forceps, preferably Woakes', along with the removal of the faucial tonsils if these are hypertrophied. While employing digital examination, Meyer has described the sensation as "like pushing the finger into a bunch of earth-worms."—(*Practitioner*, January, 1892.)

[When speaking on this subject to students I am in the habit, by way of illustration, of comparing the sensation to that which one experiences in thrusting the finger into the substance of a rapidly growing sarcomatous tumour, pushing one's way into friable tissue where the resistance to the progress of the finger is of a comparatively slight character. This can be readily practised by any student in the operating room after such a tumour has been removed, and the feeling is thus much more readily learned than by poking amongst collections of earthworms.—J. W. D.]

Primary Periostitis of the Mastoid. By H. v. Wurdemann, M.D., of Milwaukee.—Dr. Wurdemann here reports two cases, one of primary periostitis, the other distinctly secondary to middle ear mischief.

The former occurred in a woman about 30 years of age, while recovering from an attack of facial erysipelas. She had a temperature of 101°, and the mastoid region was boggy and very tender. There was no history of former

inflammation of the ear. An incision (Wilde's) down to the bone showed the periosteum to be thickened, but there was neither pus present nor necrosis of the bone. The incision gave immediate relief, and the wound healed readily.

The second case recorded occurred in a man aged 54, who had an acute middle ear catarrh following influenza, but no discharge had been seen for four months. On examination he could not hear the watch. There was a swelling over the left mastoid which was red and tender, and a large dry perforation existed in the left membrana tympani. Milder measures being of no avail, an incision was made over the mastoid, and through the periosteum down to the bone, by which a quantity of pus was evacuated. The periosteum was found to be thickened and detached, and the bone beneath softened. This being scraped and dressed antiseptically, it healed without further trouble.—(*The Journal of the American Medical Association*, 31st October, 1891.)

Cholesteatoma of the Ear.—Two papers, one by Kuhn of Strasburg, and one by Bezold of Munich, bearing on this subject appear in the *Archives of Otolaryngology* for October, 1891. In the former we have the opinion of pathologists and aural specialists regarding the nature of the tumour and its method of origin. It is composed of concentric lamellæ of epidermoid cells, with cholesterol crystals lying between the layers in varying quantities. Virchow holds that such tumours originate in the interstices of bone around the ear, which it distends as the growth increases in size, resulting in absorption and finally perforation of the bone. Von Troeltsch, on the other hand, considers cholesteatoma to result from chronic inflammation of the mucous membrane of the middle ear, the products of which are retained, resulting in this as a form of retention tumour. Kuhn describes a case where a large mass of this material formed in the posterior wall of the meatus, producing extreme pain, profuse suppuration, and ending in formation of a fistulous opening through the bone. On opening the mastoid, it was found to be filled with a large cholesteatomatous collection.

In Bezold's paper the treatment of this condition when met with in the middle ear is specially dwelt upon. He recommends removal of all granulations present, scraping away softened bone, and, if need be, the opening of the mastoid cells, followed by thorough cleanliness and antiseptic applications.

Soft Papilloma of the Ear of Suspected Infectious Origin.

By Robert Lake, F.R.C.S.—Mr. Lake reports a case of a girl, 17 years of age, who had suffered from suppurative catarrh of the middle ear for two or three years, the accompanying discharge being of a very offensive character. On examination the meatus was seen to be obstructed by three fleshy-looking masses springing from the outer extremity of the meatus. Their appearance was suggestive of gonorrhœal warts, though no history to bear out this suspicion was obtained. From their position, Mr. Lake considered that those appearing later resulted from infection by contact with the first growth.—(*Lancet*, 9th January, 1892.)

[Is it not more probable that the irritation from long continued purulent discharge which produced the first growth also led to the appearance of the second and third?—J. W. D.]

Two Cases of Malignant Disease of the External Ear. By Wm. Milligan, M.B.—Under this heading two cases of aural disease are described. The first was a man, 57 years of age, with the history of having received a cut through the auricle four and a half years previous. Eight weeks after injury a hard nodule appeared in the cicatrix; this increased in size and ulcerated. On presenting, the upper third of the auricle was destroyed, the remaining portion indurated and unhealthy. The auricle was removed, the wound healed readily, and eighteen months after no recurrence had taken place. Microscopically it was seen to be an epithelioma.

The second patient was also a man, 56 years of age, with polypus in ear, but without history of previous discharge. External meatus was filled with unhealthy granulations, and a large portion of the posterior bony wall of the meatus was necrosed. Granulations were removed, and the part cauterised with the galvano-cautery; and the post-auricular abscess, resulting from presence of dead bone, opened, and pus evacuated, but the patient died.—(*Medical Chronicle*, January, 1892.)

[There is no evidence produced to support the statement that the latter case was malignant—i. e., cancerous.—J. W. D.]

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On the Simulation of Hysteria by Organic Disease of the Nervous System, by Thos. Buzzard, M.D. London: J. & A. Churchill. 1891.

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A Treatise on the Ligation of the Great Arteries in Continuity, with Observations on the Nature, Progress, and Treatment of Aneurism, by Chas. A. Ballance, M.B., M.S.Lond., and Walter Edmunds, M.A., M.C.Cantab. With 10 Plates and 232 Figures. London: Macmillan & Co. 1891.

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The Treatment of Typhoid Fever, by James Barr, M.D.; Introduction by W. T. Gairdner, M.D., LL.D. London: H. K. Lewis. 1892.

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ORIGINAL ARTICLES.

DISCUSSION ON
ACUTE INTESTINAL OBSTRUCTION, WITH SPECIAL
REFERENCE TO TREATMENT,

IN THE
PATHOLOGICAL AND CLINICAL SOCIETY, 14TH DECEMBER, 1891.

The President, DR. NEWMAN, in the Chair.

ON THE PATHOLOGY OF INTESTINAL OBSTRUCTION
AS ILLUSTRATED BY SPECIMENS AND *POST-
MORTEM* RECORDS.

BY JOSEPH COATS, M.D.

It may occur to some as curious that a pathologist should be asked to introduce a discussion on obstruction of the intestine, in which the question of treatment is to be prominent, especially when his remarks are to be illustrated with such an array of pathological preparations as are now before the Society. But this is just one of the cases in which pathological anatomy shows, not only the disastrous results of disease, but also the conditions which were in existence during the life of the patient. I even venture to hope that the conditions which I will show and describe may have considerable bearing on

the question of operative treatment in cases of acute obstruction of the intestine.

In looking over the cases of acute obstruction of the intestine which have occurred in the Western Infirmary, I have in the first place a number of preparations mounted in the Museum and entered in the Catalogue. I have a considerable number of these. In addition Dr. Rutherford has, with the expenditure of considerable labour, gone over the pathological records of the Infirmary, and has written out summaries of the principal cases. In the further remarks which I shall make, I shall draw from these two sources.

It is possible to form some kind of classification of the cases contained in these records.

There is a certain number in which the obstruction was due to *Chronic Peritonitis* usually of old standing. An acute peritonitis, if it be general, is usually a rapidly fatal disease, and is so by reason of the septic poisoning which generally accompanies it. But if the inflammation be localised, as in cases of limited abscess, then the patient may survive. In that case, as well as in other more chronic cases, the principal lesion is adhesion of the peritoneal surfaces. The bond of adhesion is here, as in cases of chronic inflammation generally, new-formed connective tissue, and the adhesions may consist in the binding together of considerable portions of the abdominal contents, or in the formation of bands, the adhesions being stretched by the movements of the viscera so as to assume the form of elongated cords.

There are several causes of such localised or chronic peritonitis which emerge in considering these cases. One of the most interesting is healed tuberculosis of the intestine, a subject on which I have recently made a communication to another society.* If tuberculosis of the peritoneum be recovered from, it will usually leave either a general adhesion of the peritoneum, obliterating the sac, or else a number of adhesions which may be so stretched as to form bands. Again, a frequent source of localised chronic inflammation is to be found in the uterine organs. Perimetritis is a localised peritonitis, and may lead to adhesions long or short. The vermiform appendage is a third frequent source of inflammation, and there may be considerable adhesions from the effects of inflammation here, an inflammation sometimes included under the designation perityphlitis. Of less frequent occurrence are adhesions occurring in connection with an old hernia. A hernia which has been strangulated may, if the gut be

* See *British Medical Journal*, 31st October, 1891.

returned, give rise to an acute or chronic inflammation. In the former case soft fibrinous adhesions will at first unite the surfaces, but these may be followed by more permanent organised adhesions. If there be chronic inflammation, then the adhesions are firm from the first. There are, no doubt, other groups of cases in which peritonitis is the primary lesion, but I think that these are the chief.

The next great group of cases includes the *Cancerous Tumours of the Intestine*. I believe that cancer of the intestine is always located in the large intestine—at least it is so in my experience. Cancerous tumours, by virtue of their nature, penetrate into the walls of the intestine, and frequently into the tissues outside. In that case they lead to adhesion and matting around. But we shall see that there are cases in which there is no adhesion or matting, and the affected portion of intestine is quite movable.

Besides these two great categories we have some smaller groups. One of the most important of these comprises *Volvulus* or *Twist of the Intestine*. In some cases, as in one which I shall relate, the conditions leading up to the twisting were due to inflammation of the intestine. Besides these we have *Intussusception*, *Ulcers*, and other less common conditions which will be duly referred to in relating the cases.

In relating the subjoined cases, I will take up first those due to peritonitis, but I will not divide them according to the cause of peritonitis, as that is sometimes obscure, but rather according to the constricting lesion, whether a band or a more general adhesion.

I.—STRANGULATION BY BANDS.

These bands usually consist, as already mentioned, of connective tissue the result of chronic inflammation, but may arise from the adhesion of existing structures, such as a Meckel's diverticulum (as in one case related) or a portion of the great omentum.

CASE I [152].* STRANGULATION BY A FIBROUS BAND PASSING FROM THE GREAT OMENTUM; SEPARATION OF BAND BY OPERATION.—At the *post-mortem* in this case, a number of fibrous bands were found uniting the great omentum to the anterior abdominal wall, and the loops of intestine to one another. There was one special band, which was attached at one end

* The figures within brackets refer to the numbers in the Pathological Register or in the Museum Catalogue of the Western Infirmary.

to the great omentum and free at the other, where it looked as if it had been torn. This band was 5 inches in length, and formed a string of considerable tenacity. A loop of intestine about 13 inches long, and consisting of the last part of the ileum was found to be intensely hyperæmic, the congestion extending through all the coats of the bowel, and strictly demarcated above and below. About a foot above this there was a loop in which hyperæmia was less intense and less general, but the mucous membrane presented several sloughs, one of which occupied the entire thickness of the intestine. The peritoneal surface was adherent over this by soft recent fibrine, and on separating this adhesion the intestine ruptured.

John F., aged 25, awoke on the morning of 29th October, 1876, with colicky pain and vomiting. These continued, and he was admitted to the Western Infirmary on the 31st. On 1st November the abdomen was opened, the band found and separated. The band was near the cæcum and constricted the small intestine. He died on the 5th November.

In this case the numerous adhesions, taken along with the age of the patient, suggested a healed tuberculosis as the primary lesion.

CASE II [593]. CONSTRICTION OF INTESTINE BY FIBROUS BAND.—At the time of the *post-mortem* two transverse constrictions were found, but the band had been removed by operation. The case was that of an elderly man, but the history was not procurable.

CASE III [Series IV, 63 E]. STRANGULATION OF LOOPS OF SMALL INTESTINE BY A BAND FROM OMENTUM TO MESENTERY; HEALED TUBERCULOSIS.—There was here a substantial band passing from the great omentum so as to completely surround a loop of small intestine with its mesentery. Towards its extremity the band has the characters of a smooth round cord, and is inserted into the mesentery close to the intestinal attachment. The portion of intestine enclosed is the last part of the ileum, and a limb of entrance and one of exit were found passing beneath the girdle. The limb of exit, which is the last part of ileum, is more tightly compressed by the girdle than that of entrance. The enclosed coils of intestine were deeply congested, and they, as well as other loops, presented a deposition of recent fibrin.

George S., aged 8, was under treatment for tuberculous ulcers and glands, when he was suddenly attacked by pain in the abdomen, succeeded next day by vomiting, which rapidly became fæcal. There was no passage of fæces from the onset

in spite of various methods of treatment. Death occurred four days after the first attack of pain.

CASE IV [Series IV, 62 B]. HEALED TUBERCULOSIS; FORMATION OF BANDS; STRANGULATION OF THE INTESTINE.—In this case a loop of intestine is firmly constricted by a strong band, which embraces it so closely as to be almost buried in its own groove. The band, which consists of connective tissue, has both of its attachments to the small intestine, the lower one 6 inches above the ileo-cæcal valve, and the other about 18 inches further up. About half of this 18 inches of intestine has become incarcerated, having been inserted into a loop formed by the constricting band. This portion of intestine was in some parts greenish from gangrene. There were numerous other adhesions and rounded cretaceous bodies in various parts of the peritoneum, evidencing a healed tuberculosis. There was also a healed tuberculosis of the lungs.

A. C. A., a clerk, aged 20, suffered from abdominal pain and constipation, latterly with stercoraceous vomiting for four days before death. He was admitted about twelve hours before death in a state of collapse. (A full account of this case will be found in the *Glasgow Medical Journal*, November, 1889).

CASE V [2612]. STRANGULATION OF INTESTINE, RELIEVED BY OPERATION, FROM A BAND DUE TO HEALED TUBERCULOSIS.—At the *post-mortem* in this case a loop of small intestine was found with constriction at the upper and lower extremities, and of a dark purple colour. There was, however, no necrosis and no acute peritonitis. The band which had constricted had been removed, but there were numerous other adhesions in the peritoneal cavity, and there were calcified mesenteric glands.

Elizabeth W., aged 50, was admitted to the Infirmary with stercoraceous vomiting and pain in the abdomen. Pain and vomiting had begun six days before, and the vomiting had become stercoraceous four days after the onset. Three years previously the patient had an attack with similar symptoms. On opening the abdomen two firm bands were found constricting the intestine, and these were removed. The patient did well for two days, and then she became drowsy and comatose, and died.

CASE VI [Series IV, 63 F]. CONSTRICTION OF INTESTINE BY A BAND CONSISTING OF AN ADHERENT MECKEL'S DIVERTICULUM; ABSCESS.—The conditions here were difficult to disentangle, but the general facts are that a broad and partly

tubular band proceeds from the small intestine, about 30 inches above the ileo-cæcal valve where it is attached along the free border of the gut, to the extreme lower part of the small intestine, where it is inserted into the mesentery. The 30 inches of intestine between the two points of attachment have passed beneath the band, and there is great constriction at the entrance and exit. The constricting band was involved in an abscess, forming, indeed, part of the abscess wall, but although considerably destroyed it still shows in part of its extent a tubular formation like the finger of a glove. It is believed that this band represents a Meckel's diverticulum on the following grounds:—(1) It is partly composed of a tube about the diameter of Meckel's diverticulum; (2) It is attached in the usual situation of Meckel's diverticulum—namely, 30 inches above the ileo-cæcal valve, and, like it, to the free border of the intestine; (3) The intestine, at the point of attachment, shows a slight pouch which, however, could not be traced into the band, but the intestine in this region communicated with the abscess, which had partly destroyed the band.

Robert C., aged 24, was suddenly seized with severe pain in the abdomen seventeen days before death. He was admitted three days afterwards, suffering from severe pain and swelling of the abdomen with vomiting, which was not fæculent. Improvement occurred, and twelve days after the seizure he had, after an enema, a large light-coloured motion. He continued to improve till the morning of his death, when extreme pain developed, and he rapidly fell into a state of collapse.

CASE VI [IV, 63 G]. STRANGULATION OF INTESTINE BY A BAND ADHERENT TO VERMIFORM APPENDAGE.—In this case a coil of small intestine, about 10 inches in length, was found after death, almost black in colour, and with several ragged perforations on its convexity. The lower extremity of this coil came to within 3 inches of the ileo-cæcal valve. The strangulation was produced by a cord an inch and a half in length, which proceeded from the convexity of the intestine at the upper end of the strangulated part, to the vermiform appendage. The lower attachment is to the appendage about half an inch from its distal extremity. Here the appendage makes a sudden bend, and the band is attached at the angle of the bend. Beyond the bend the appendage is rather bulky, and feels as if it might contain something. The constricting cord is about the thickness of whip-cord, and it has formed a loop into which the intestine has passed and been con-

stricted. There were evidences of an acute peritonitis resulting from the perforation.

Mrs. Q., aged 33, was six months pregnant. She was suddenly attacked with pain in the abdomen and vomiting, and the vomiting was stercoraceous. She died on the fourth day. Labour pains had begun, but delivery was not complete at death.

II.—PERITONEAL ADHESION APART FROM BANDS.

In cases of this sort the obstruction was produced in various different ways. In some cases there was constriction of the parts, in some adhesions had led to immobility of the loops, and in others a kinking of the intestine seemed to be the cause of obstruction.

CASE VIII [476]. ADHESION OF SIGMOID FLEXURE TO STUMP AFTER OVARIOTOMY; TWISTING.—In this case the sigmoid flexure was found firmly adherent to the pedicle left after removal of an ovarian tumour. The flexure was twisted so that there was considerable obstruction at the neck of the twisted portion. Otherwise the conditions were not remarkable.

Elizabeth H., æt. 35, had a multilocular cyst removed on 30th September, 1879. The patient progressed favourably without a single bad symptom till 9th October, the wound being then perfectly healed. Suddenly, between 11 and 12 P.M., she complained of a severe pain in the left thigh, and a feeling of faintness, which soon deepened into profound shock. She died within fifteen minutes of her first complaint of pain. It is probable that here death occurred from faintness due to the shock of a sudden twist of the sigmoid flexure. In this connection it is to be noted that the heart showed a well marked fatty degeneration of the muscular fibres.

CASE IX. OBSTRUCTION OCCURRING FOUR YEARS AFTER A PELVIC PERITONITIS; PROBABLE TWISTING OF ILEUM.—At the time of the *post-mortem* in this case, a loop of intestine, being the last part of the ileum, was found to be of a dark colour, and evidently the seat of a former partial strangulation. There was an old pelvic peritonitis which had extended upwards so as to involve the ileum in adhesions. By this inflammatory process the loop of ileum already referred to had become fixed at its upper end to the posterior wall of the abdomen close to the cæcum, and in this way the upper end of the loop was brought close to the lower extremity and rendered

immobile there, the lower extremity being already fixed normally by its connection with the caput cæcum. The loop of small intestine concerned was thus brought into a condition similar to that of the sigmoid flexure, in respect that its two extremities were close together and fixed. Under these circumstances it is probable that this loop of intestine, which had undoubtedly been partially strangulated, had been the seat of twisting—and, indeed, at the *post-mortem*, the loop still presented a slight twist. There had occurred a slight separation of the strangulated piece of intestine at its upper extremity, and this allowing of passage of the intestinal contents had caused a fatal peritonitis.

The case was one in which the history, as obtained from Dr. W. L. Reid, pointed to a severe pelvic inflammation following on a confinement four years before death. Constipation suddenly occurred about six weeks before death. The obstruction was relieved at the end of about eight days by the use of copious enemata. The patient now improved for three days and then suddenly became insane. She was removed to Gartnavel, where she died from acute peritonitis lasting about two days.

CASE X [1092]. PERIMETRITIS; ADHESION OF LOOP OF ILEUM; CONSTRICTION AND GANGRENE, WITH SUBSEQUENT PERFORATION. —Towards the left iliac fossa a loop of small intestine, consisting of lower part of ileum, was found of a dark red colour, and with patches having a grey gangrenous appearance. Towards its lower end this piece of intestine was much narrowed, being drawn in by adhesions which were evidently due to perimetritis. There were well marked evidences of this in the presence of adhesions around the uterus, so that Douglas's space was entirely abolished. Several loops of the ileum were adherent in this neighbourhood, and amongst them the loop already mentioned. At its lower extremity this loop had given way, and fluid fæces had passed into the abdominal cavity. There were evidences of acute peritonitis, the abdominal organs being adherent by means of soft fibrin.

Eliza R. was confined six months before death. There were pains in abdomen and difficulty in making water for three or four weeks before death, and the bowels had not been moved for about a fortnight. On admission to the hospital, which only occurred four days before death, the appearance of the patient was very striking. The surface of body was dry and cold; face earthy coloured, pinched, and drawn; and the tongue brown and covered with sordes. There was severe vomiting, but it is not known to have been stercoraceous.

No movement of the bowels was obtained even with large enemata.

CASE XI [IV, 63 B]. CHRONIC PERITONITIS ; BANDS ; OBSTRUCTION BY KINKING OF SMALL INTESTINE ; ORIGIN IN VERMIFORM APPENDAGE.—This preparation, as displayed, shows a thick band, about the diameter of a finger, passing from the umbilicus to the transverse colon. There is also a narrow band, about $2\frac{1}{2}$ inches in length, passing from the transverse colon to a compacted mass of small intestine, which lay in the right iliac fossa. The bands had not produced obstruction ; but the loops of small intestine, united and drawn together by firm fibrous adhesions, had been kinked so as to form abrupt turns. This condition had induced almost complete obstruction at various points. The part of small intestine affected is the lower part of the ileum. The vermiform appendage was traced from the caput cæcum, but was found to become incorporated with the compacted mass, and no longer traceable.

Margaret T., æt. 55, complained of sickness, pain in the abdomen, and constipation lasting about three months, with progressive increase in severity. The vomiting was latterly fæculent.

In this case it is probable that an inflammation of the vermiform appendage had induced a local, and subsequently a more general peritonitis.

CASE XII [1749]. CONTRACTION OF SIGMOID FLEXURE ; PERFORATION ; ABSCESS ; PERITONITIS.—In this case, as seen *post-mortem*, the most noteworthy fact was the existence of a pronounced acute peritonitis. This had arisen in connection with an abscess in the neighbourhood of the sigmoid flexure, and with a perforation of that part of the intestine. The flexure itself, in the words of the report, "is seen for about 5 inches to be greatly contracted, its circumference, as measured after laying open, not exceeding an inch and a half. The mucous membrane is greatly corrugated, but not ulcerated, and the pouches are greatly exaggerated. One of these pouches has been perforated, and communicates with the abscess."

Andrew J., aged 36, was attacked eight days before admission with acute pain above the pubes, aggravated by taking aperient medicine, which, however, acted, producing great pain during defæcation. After this there was no complete obstruction, but pain and swelling of the abdomen, with frequent bilious vomiting. On admission the physical signs were already those of acute peritonitis.

III.—TWISTING OR VOLVULUS.

This condition of twisting of the intestine is of frequent occurrence at the sigmoid flexure. The anatomical arrangement of the flexure is sufficient to account for this. We have here a loop of intestine attached at its upper and lower ends, where it passes into the descending colon on the one hand, and the rectum on the other, but with a mesentery sometimes of considerable length allowing of free movement. It is a common *post-mortem* experience to find the sigmoid flexure twisted either with one turn or two, and the peritoneum often shows thickening, sometimes of a glistening tendinous character, at the places where the intestine has been in contact in crossing. It is obvious that in many cases this twisting produces no serious obstruction of the intestine, although it can scarcely fail to render the passage of *fæces* more difficult than under normal circumstances. I am able to show here a typical example of twisting, which was found *post-mortem*, there having been no complaint during residence in the hospital of any obstruction of the intestine.

CASE XIII [IV, 37]. TWISTING OF THE SIGMOID FLEXURE.—The specimen shows a very definite twist of the sigmoid flexure—the flexure being turned half round twice over in the usual way. The neck shows some thickening of the peritoneum indicating a considerable duration, but the flexure is not greatly distended.

Mrs. E., aged 56, was only four days in the Infirmary. She was affected with external cerebral softening due to atheroma and thrombosis of the arteries.

In some cases the twisting does produce marked obstruction, but this is apt to be incomplete and prolonged. One of the most striking examples of the results in such cases was shown in a case which I have already put on record.* The incomplete obstruction had, in this case, led to an extraordinary enlargement and hypertrophy of the flexure, the hypertrophy being mainly a compensatory hypertrophy of the muscular coat designed to overcome the obstruction. The case may be briefly related as follows:—

CASE XIV. TWISTING OF SIGMOID FLEXURE; PARTIAL OBSTRUCTION; GREAT HYPERTROPHY OF GUT.—At the *post-mortem* examination, the distension of the abdomen was exceedingly striking. On laying open the abdomen the distension was

* *Glasgow Medical Journal*, vol. xiii, p. 445.

seen to have been produced almost entirely by the extraordinary dilatation of a single loop of intestine which was found to be the sigmoid flexure. It is difficult to convey a due impression of the amount of dilatation of this portion of gut. It seemed to fill the abdomen, and its diameter was not less than that of a well developed thigh. The course of the bowel was most readily traced from the rectum upwards, and this limb of the loop passed right up into the left hypochondre. Here it made a sharp bend, and returned still much dilated. At its lower extremity this limb twisted round the other and then passed backwards to become continuous, in the normal way, with the descending colon, which was in its usual position. The great distension of the flexure had dragged the rectum greatly upwards. This, of itself, considerably narrowed its calibre, which was still more obstructed, but not completely so, by the twisting of the intestine round it. It is to be here particularly observed that the actual twisting involved mainly the upper limb of the loop, so that a tube might have been passed upwards into the sigmoid flexure without meeting any serious obstruction, except by the pressure of the portion of intestine passing round the neck. It was found comparatively easy to untwist the flexure, and it was thus more definitely made out that it had twisted on itself, making two half turns. At the point of twisting the gut was considerably narrowed, especially at the lower extremity, where the sigmoid flexure passes into the rectum, and here there was some thickening of the peritoneum; but, after untwisting, water passed freely through the narrowest part.

The patient was a demented old man, from whom it was impossible to get a good account of his illness. It was ascertained, however, that, on two previous occasions, he had complained of obstruction of the intestine, from which he recovered, and that this attack, from which he died, was the third. It could not be ascertained when the bowels were last moved, but he began to complain of uneasiness and pain in the abdomen about a week before death. There was no vomiting throughout, and the most prominent symptom was an enormous flatulent distension of the abdomen. For this, colopuncture was twice performed, but without apparent relief; injections were given per anum, but they came away with very little fæcal matter.

But though usually insufficient to cause serious obstruction, twisting of the sigmoid sometimes does so. This appears to have occurred in the next case.

CASE XV [2599]. TWIST OF SIGMOID FLEXURE; ACUTE OBSTRUCTION; LAPAROTOMY.—In this case, on *post-mortem* examination the sigmoid flexure showed evidences of a severe obstruction, its entire extent being of a dark green colour. It also showed a sutured wound. There was a twist of the flexure, which at the *post-mortem* did not amount to more than a single crossing, but as the coil was flaccid from having been emptied at the operation, the arrangement had probably been disturbed. There was no other cause of strangulation and the obstruction was limited to the flexure. There were evidences of acute peritonitis in the form of fibrinous exudation and injection, and this had been the immediate cause of death.

Donald F., aged 39, was admitted suffering from collapse. It was stated that he had gone to bed well, the night before, and had been awakened about 4 A.M. by a violent abdominal pain. This increased, and he retched and vomited. The abdomen was found distended and tympanitic. Laparotomy was performed, and no cause of obstruction found. The greatly distended sigmoid flexure was incised, and gas and faeces evacuated. The wound in the intestine was then sutured and the abdominal cavity cleansed. The patient never properly rallied after the operation.

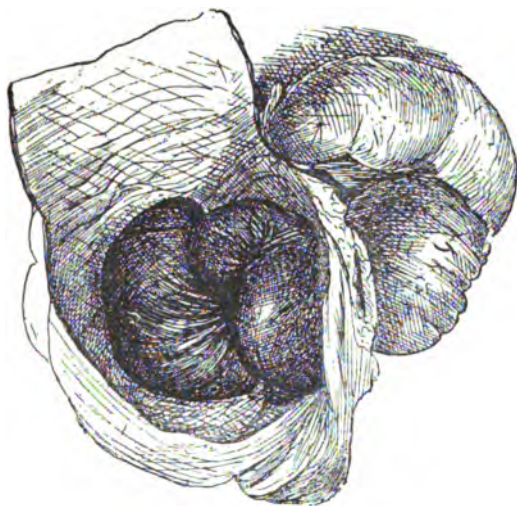
Amongst the cases of twisting might also be included one of those already related—namely, Case IX. It will be noticed that this case forms an exception to the general rule that the sigmoid flexure is the part which usually undergoes this lesion. But it is interesting to observe that here the last part of the ileum had been altered in its anatomical relations in such a way as to make it comparable with the sigmoid flexure. That is to say, while the lower end of the ileum is naturally fixed at its insertion into the caput cæcum, a pathological fixation had taken place at a point several inches above this, by reason of a chronic peritonitis referable to perimetritis.

IV.—INTUSSUSCEPTION.

This somewhat common cause of intestinal obstruction is illustrated by only one case, but it is rather an interesting one.

CASE XVI [IV, 37 B]. INTUSSUSCEPTION OF ILEUM INTO ITSELF AND INTO CAPUT CÆCUM; GANGRENE OF PART OF INTESTINE.—This preparation, which is illustrated by the accompanying drawing, shows the caput cæcum opened up

and the last part of the ileum. On the proximal side of the ileo-cæcal valve there is an involution of the small intestine which begins about 3 inches above the valve. There is thus a cylinder of small intestine, about 3 inches in length, which is densely packed with involuted and adherent gut. Inside the caput cæcum, lying loose in the calibre, there are two loops of small intestine. One of these, which is next the valve, is solid from impacted intestine; the other is soft, and has no solid contents. Both are brown in colour, but the distal one is shreddy. On injecting water from above the intussusception it was found to pass through the involution and to escape by apertures in the distal shreddy gangrenous loop.



Mary M'N., aged 42, began to complain of pain in the abdomen and of vomiting three days before death. The vomiting soon became stercoraceous. There was costiveness, but not complete constipation, the bowels having been moved twice after the attack, but the matter passed was a blackish fluid. Collapse ensued and she died.

V.—TWO UNUSUAL CASES.

Of these two cases one shows an aperture in the mesentery, into which the intestine had become packed and strangulated. The other is specially interesting as showing what may occur after the relief of a strangulated hernia.

CASE XVII [IV, 60]. LARGE APERTURE IN MESENTERY INTO WHICH THE SMALL INTESTINE WAS TWISTED AND PACKED.—The aperture, which corresponds in situation with the mesentery of the middle part of the jejunum, is of a rounded outline, and measures $3\frac{1}{2}$ inches in diameter. Its edges are smooth and rounded, presenting no appearance of a recent tear.

At the time of the *post-mortem* the small intestine, with the exception of 3 feet at its upper end, was twisted and impacted into this aperture in such a manner as to render it very difficult of removal, which was only effected by partially emptying the intestines. The whole small intestine was greatly distended, and presented a deep red colour. There was also a red fluid in the peritoneum, but without any inflammatory appearance. The contents of the intestines were a bloody grumous material, and the mucous membrane was very red.

The patient was a sailor, aged 36, who, previous to admission, had been greatly reduced by six months' diarrhoea, contracted while in the Chinese seas. Twelve hours before death he was suddenly seized with excruciating abdominal pain and stoppage of the bowels, and these symptoms continued till death.

CASE XVIII [IV, 22 A]. STRICTURE OF INTESTINE AFTER STRANGULATED HERNIA; THINNING AND PERFORATION BY PORTION OF FOOD; ACUTE PERITONITIS.—We have here the unusual condition of stricture of the small intestine. The constriction is of a cicatricial character, and leaves a calibre only of $1\frac{1}{2}$ inch. Above the constriction there is a general dilatation, and immediately above there are several pouches, with considerable thinning of the walls. In the midst of one of these pouches there are two small apertures the size of pin's heads. In the pouches were found the remains of beans, chiefly their brown skins. The peritoneum showed a general fibrinous exudation, abundant in some places. There was a small right femoral hernial sac $1\frac{1}{2}$ inch in diameter, which contained fibrinous exudation.

The case was that of a farm labourer who was in the Western Infirmary in July, 1888, with a strangulated hernia. This was relieved by operation, and the patient made a good recovery. He was readmitted nine months afterwards with severe abdominal symptoms, ascribed to eating beans. Pain was the first symptom, and this was followed by the general symptoms of acute peritonitis.

In this case the course of events seems to have been, a partial gangrene of the intestine at the time of the strangula-

tion, leading to a cicatricial contraction of the strangulated part. The accumulation of hard food in the pouches caused by the contraction had led to perforation and peritonitis.

VI.—CONSTRICTION FROM NON-CANCEROUS ULCERS.

Under this category we have two cases. In one of these the impaction of fish-bones had caused ulceration, adhesion, and contraction of the sigmoid flexure, and had produced obstruction. The other is a more unusual case in which a tubercular ulcer of the caput cæcum had caused such contraction as to obstruct the calibre greatly.

CASE XIX [IV, 38]. DISTENSION AND ULCERATION OF LARGE INTESTINE FROM IMPACTED FISH-BONES.—A portion of the transverse colon is preserved, and it is seen to be greatly distended, while the mucous membrane is continuously altered, being infiltrated and ulcerated; the wall is also thin in some places, but not perforated. The seat of obstruction was at the sigmoid flexure, there being here adhesion, thickening, and ulceration occupying 2 inches of the intestine—viz., the lower part of sigmoid flexure; the ulcer was a circular one surrounding the intestine, and the adhesion to parts around was so great that it could not be separated without tearing. The affected part of sigmoid flexure was greatly displaced, being carried over to the right side, and adherent near the right cornu of the uterus. In connection with the condition of the intestine, two small pieces of blackened fish-bone were found—one of them certainly outside the intestine, and the other stated to be inside. The condition of the intestine shown in the preparation affected the whole large intestine above the sigmoid flexure, and also the last part of ileum.

The patient was a woman, aged 47, who had complained for some months of severe abdominal pains, followed by constipation.

CASE XX [590]. ULCERATION OF CAPUT CÆCUM, WITH GREAT CONTRACTION AND OBSTRUCTION; DISTENSION OF ILEUM.—The *post-mortem* record here relates that, towards the right iliac fossa the parts were considerably matted and the omentum adherent, but there were no adhesions except in this neighbourhood. It was clear that the cæcum was greatly contracted and the ileum greatly distended. The distended ileum passed abruptly into the cæcum, being dilated right up to the valve. Before opening the intestine, water was injected into the

ileum and was found, even with considerable pressure, to ooze very slowly into the cæcum. On laying open the caput cæcum great ulceration was found in the part beneath the level of the valve, and the ulceration was continued into the first part of the appendage. This part of the appendage formed a ragged cavity, the wall having been destroyed posteriorly, but closed by adhesions. The ulceration had also attacked the ileo-cæcal valve. Its structures as a whole are thickened, and a tongue-shaped piece separated. It was still possible, however, to pass the finger through the valve. The ulcerated part of the cæcum was greatly contracted, and above the contraction the wall was puckered in and the mucous membrane thrown into folds. It was also noted that as the ulceration was beneath the level of the valve, the actual obstruction was caused by the dragging in of the wall and the folding of the mucous membrane.

The ulceration here was tubercular, and there were the further evidences of an old tuberculosis, which, however, had undergone healing in the presence of large cretaceous mesenteric glands.

Mary H., aged 13. Two months before death she had an attack of what was regarded as tubercular peritonitis. Thereafter symptoms of intestinal obstruction occurred, with pain and swelling up of coils of small intestine. These symptoms recurred with great severity up till a few days before death, although the bowels were opened freely.

VII.—OBSTRUCTION OF INTESTINE FROM CANCER.

Cancer of the colon is probably the most frequent cause of intestinal obstruction. I am able to give an account of eleven cases, but will limit the number to seven, as these will be sufficiently illustrative.

Cancer rarely causes obstruction by its mere bulk. The usual occurrence is that the cancer being a superficial epithelioma, undergoes ulceration. As the cancerous structures are removed by the ulceration, a cicatricial contraction frequently ensues in the central part. There is commonly a ring-shaped ulcer with considerable narrowing of the calibre. In some cases the cancer is so much destroyed by the ulceration that the new-formation is represented by little more than a raised edge on either side of the ulcer. Besides the mere narrowing of the calibre there is another element which frequently contributes to the obstruction or even becomes the immediate cause. This is folding of the mucous membrane. By the

contraction of the calibre the mucous membrane around the lesion is thrown into folds, and these may be very prominent. Sometimes such a fold will form a kind of valve over the narrowed part, and so complete the obstruction.

CASE XXI [IV, 42]. CONSTRICTION OF COLON BY SMALL CANCEROUS ULCER; GREAT DISTENSION.—The greater part of the colon was enormously distended, as shown in preparation, its diameter, when flattened, measuring 7 inches. The wall, and especially the muscular coat, is considerably thickened. The vermiform appendage is also greatly elongated and dilated. The last part of the ileum, which is preserved, is also much dilated. The distension of the colon ends abruptly about the junction of the transverse and descending portions; here there is an extreme narrowing of the gut, as if by a cicatricial band. The narrowing is such that not more than a crow quill could be passed. On laying open the constricted portion, a ring-shaped ulcer was disclosed; it was of a greyish colour, and had hard base and edges. The ulcer is of very limited extent, hardly passing beyond the limits of the constricted ring.

Under the microscope it is somewhat difficult to distinguish the exact character, but, in some parts of the wall of the ulcer, distinct collections of epithelial cells are found, and these even beneath the mucous membrane and in the muscular coat, so that the cancerous nature of the ulcer is demonstrated.

The patient was a man aged 44. He had suffered from constipation and dyspepsia for a year or two, but latterly he had always to take some opening medicine before the bowels acted. There was complete obstruction for five or six days before death with excessive vomiting, but not stercoraceous. The abdomen was greatly distended.

CASE XXII [IV, 42 A]. OBSTRUCTION OF SIGMOID FLEXURE BY CANCER; COLOTOMY.—This preparation shows in longitudinal section a somewhat bulky pale solid tumour, which completely obstructs the calibre of the large intestine. The tumour showed a distinctly cancerous structure, and there were secondary tumours in the lungs, liver, and mesenteric glands.

There were recurring attacks of obstruction of the bowels extending over eight months. Colotomy was performed, and the patient lived for eight months.

CASE XXIII [IV, 42 B]. CYLINDER-CELLED CANCER OF THE SPLENIC FLEXURE; OBSTRUCTION; COLOTOMY.—This case at the *post-mortem* showed the general aspects of an intestinal obstruction—namely, great distension of the colon ending

abruptly about the splenic flexure. This is also seen to some extent in the preparation, there being on one side great distension with a sudden narrowing at the seat of the tumour. The tumour itself as seen in longitudinal section is in the form of a very limited ring-shaped lesion, having a longitudinal extension of only an inch and a quarter. It projects inwards, and greatly narrows the calibre, which is reduced to a quarter of an inch at the narrowest part, but the narrowing is not alone by the projection of the tumour, being largely due to a dragging outwards of the wall. This can be very well seen at one side, where externally there is a deep pucker, and on section a carrying in of the intestinal coats down the sides of the pucker. There were no adhesions of the intestine to the parts around, and the whole lesion was absolutely limited to this small piece of intestine.

Under the microscope the tumour was seen to be a typical cylinder-celled epithelioma, the cellular processes infiltrating the coats of the intestine.

Agnes B., aged 58, presented symptoms of complete obstruction of the bowel, which had lasted some days. Laparotomy was performed, and the greater part of the large intestine was found enormously distended. The constricting tumour was felt at the splenic flexure, and although limited in extent, the extreme distension of the intestine above, and its collapsed condition below, precluded the idea of excision. An artificial anus was made in the right iliac region. The patient did well for two days, and then died from syncope. There was no sign, *post-mortem*, of peritonitis.

CASE XXIV [IV, 40]. EPITHELIOMA OF CAPUT CÆCUM, WITH PARTIAL OBSTRUCTION.—The tumour involves the whole of the caput, causing great contraction and shortening of it, so that the entire caput is comprehended in a nearly solid mass, of limited size. The gut being laid open, nothing is seen of the cavity of the cæcum, but in its place there is a prominent rounded tumour about $1\frac{1}{2}$ inch in diameter, in the midst of which there is a small aperture leading into a little pouch. Around the tumour the mucous membrane of the colon is folded concentrically. The tumour only involves very slightly the margin of the valve, but by its prominence and the contraction, it nearly obliterates the calibre of the gut just within the valve. The mucous membrane of the ileum is greatly thickened.

The microscopic structure of the tumour is that of a glandular epithelioma with a marked tendency to colloid degeneration.

The patient was a man, 22 years old. His case presented several attacks of acute obstruction, and latterly extreme wasting and diarrhoea came on. (See *Practitioner*, 1880, vol. ii, paper by Dr. Finlayson on "Intestinal Obstruction," Case 3.)

CASE XXV [IV, 49]. EPITHELIOMA OF RECTUM; ULCERATION AND CONSTRICTION; ENORMOUS DISTENSION OF INTESTINE.—The principal appearance here is an abrupt constriction 6 inches from the anus. Corresponding with the constriction there is ulceration and great contraction of the gut. The ulcer nearly surrounds the intestine, but there is a piece of normal mucous membrane left, the folds in which must have helped to close the intestine. The edges of the ulcer are abrupt and form a flat tumour which, under the microscope, had the characters of cancer. Above the stricture there was enormous distension of the intestines.

Mrs. M'C., aged 37, had been affected with obstruction of the intestine for eight weeks in a minor degree. It became acute and was accompanied by stercoraceous vomiting a day or two before death.

The next two cases are of special interest and importance as affording examples of cancer in children. Both of the cases were in female children, and the one was a typical colloid cancer, whilst the other was an ordinary form.

CASE XXVI [IV, 42 C]. CANCEROUS STRICTURE OF SIGMOID FLEXURE IN A CHILD OF 12.—There is here a narrowing of the intestine to an extreme degree, involving an inch and a half of the length of the bowel. The narrowed part has a smooth surface and an infiltrated wall, and it ends abruptly above and below, the apparently normal mucous membrane having a well marked transverse margin both above and below. Above the seat of narrowing there is dilatation.

Microscopic examination shows that in the smooth floor of the lesion the mucous membrane is entirely replaced by a distinctly cancerous tissue, consisting of elongated passages containing epithelial cells, along with a good deal of connective tissue infiltrated with inflammatory cells. In the midst of the lesion this tissue also replaces the muscular coats of the intestine, and there is considerable thickening and new-formation beneath the peritoneum. At the borders of the lesion the cancerous infiltration is seen in progress. Processes of epithelial cells are visible, penetrating the substance of both the muscular layers, and also outside them. The epithelial cells are large and the stroma distinct.

Jessie A., aged 12. For nearly a week before admission the patient had suffered from severe pain around the umbilicus, and from constant vomiting and complete constipation. On admission the whole abdomen was tympanitic and tender. The abdomen was opened and the lesion found in the sigmoid flexure. Colotomy was performed in the right iliac region, but the child never rallied, and died 14 hours after the operation.

CASE XXVII [IV, 50 A]. COLLOID CANCER OF RECTUM IN A CHILD OF 12; OBSTRUCTION.—The preparation as exhibited consists of a longitudinal section of the rectum with the bladder in front. The wall of the rectum for a length of 5 inches is thickened and infiltrated. At the upper extremity it is seen that the mucous membrane is thickened and infiltrated, the muscular coats being visible as if unaffected. But on passing downwards the infiltration is found to affect the whole wall so that the muscular coat cannot be distinguished, and for the last 3 inches the calibre of the intestine is an irregular ulcerated canal, the extremity of the affection being at the anus. The calibre is considerably interrupted at this latter part. Above the lesion the intestine is dilated. There were numerous secondary nodules dotted over the peritoneum. These had a hyaline appearance, and varied in size from very minute to the size of a pea. The pelvic tissue was considerably infiltrated, and the lumbar, prevertebral, and inguinal glands were involved. There were three or four small nodules in the liver.

Marion G., aged 12, was admitted on 8th November, 1889, with symptoms of intestinal obstruction of a week's duration, and with a history of intestinal trouble for about a year. The rectum was found to be almost occluded, and right lumbar colotomy was performed. The patient lived till 28th March, 1890.

In looking over these various cases in the light of possible treatment, I may say that from the point of view of the pathologist many of them were, theoretically at least, amenable to successful surgical interference.

This is obviously the case where bands are concerned in the incarceration, whether these bands are due to healed tuberculosis or not. It is also the case where inflammatory adhesions have arisen from other causes. Then twists can be reduced readily enough, although perhaps they are liable to recur. Most of the other less common lesions are also theoretically amenable to treatment. In regard to ulcers, the utility

of surgical interference is less obvious. The same applies to cancers, but even in this form of disease there are cases, where the lesion is limited and the parts free from adhesions, in which, from my point of view at least, a successful issue of operation might be possible. I have related one or two of these cases.

I am aware, gentlemen, that the problem of the success of an operation is not purely one of the mechanical conditions to be encountered. In dealing with the intestine you have the absorption of poisonous products to take into account, and the patient may, before the operation, be so saturated by poisonous matters as to render recovery unlikely. But I have still the hope that if these cases can be identified soon enough, and if abdominal section can be done with slight risk to the patient, many cases such as those which I have related will be subjected to successful treatment.

(The Discussion will appear in our next Number.)

REMARKS ON THE TREATMENT OF VARICOSE VEINS AND AFFECTIONS DEPENDING THEREON, BY EXCISION OF THE FORMER.*

By A. ERNEST MAYLARD, B.S. LOND.,
Senior Surgeon to the Victoria Infirmary, Glasgow.

I HAVE no intention in these few remarks of entering into the symptoms or pathology of varicose veins, and the various conditions resulting therefrom. The class of cases is so common, and must be so familiar to every gentleman here, that it would be wasting your time, and in no sense serving my purpose, to discuss these sides of the subject. Further, I may say, I do not intend to allude to other methods of treatment, except in so far as they may serve to illustrate the greater advantage of adopting the particular one under discussion.

When last I had the pleasure of introducing to you some of the work which had been accomplished in the Victoria Infirmary, I alluded to a class of chronic ulcers in which I had obtained good results from the use of massage. You were good enough to commend at that time the suggestions I ventured to throw out regarding that method of treatment;

* Read before the Southern Medical Society, 21st January, 1892.

and, as some of you are aware, I have since embodied in a separate form several cases successfully so treated. The paper containing these cases appeared in the *Glasgow Medical Journal* for July, 1891.

It seems more than fitting that I should now ask your consideration of a treatment for the cause of many of these sluggish ulcers rather than, as before, for the ulcers themselves. As I indicated to you then, and as I have demonstrated in other ways since, massage of a so-called varicose ulcer is a measure rapidly curative in its effects upon the ulcer, but not preventative against the recurrence of ulceration. To effect what might be termed—indeed is termed—a “radical cure,” the cause of the condition must be removed; and hence, however perfectly we may for the time being be able to cure some lesion resulting from a varicose vein, we cannot be said to have effected any permanently good result without we have, in a sense, cured the vein.

The excision of a varicose vein is no new method of treatment, yet it must be said to have a much more limited application among surgeons than it deserves. There are various objections raised against its use. Among some I may mention the danger of suppuration and absorption into the system by the divided veins; the deep seated pain due to the enlargement of the deeper veins, the superficial no longer returning the blood; with others of minor importance. But with strict antiseptic precautions there ought to be little or no danger of septic trouble arising; and, regarding the dilatation of deep veins, this is largely theoretical.

There is no doubt that there is reason for considerable care in the preparation of a part for operation if untoward results are to be prevented. These dilated and tortuous veins are surrounded by fibrous tissue and lowly organised tissue in general, so that there is every likelihood, from the absence of healthy recuperative tissue, of septic trouble arising at the slightest incentive. Again, in operating upon a vein, the cause of a chronic ulcer, there exists an open wound for the absorption of septic material; and to operate before the ulcer and the parts around have been brought into a healthy condition is to run a decided risk of getting subsequently a septic wound. With due consideration of these facts, and a proper attention to the ordinary details of antiseptic surgery, there can be no more risk in excising a varicose vein than in performing many another safe operation of similar magnitude. In a case where I propose to excise a varicose vein for a chronic ulcer, the treatment is first directed to the ulcer.

As I have fully described elsewhere, and to you before, the method adopted, I shall do no more than say, that by antiseptic solutions the surface of the ulcer is cleansed, and it and the surrounding parts are rendered healthy and active by the daily application of massage. So soon as I have reason to believe that the ulcer is a healthy healing wound, the matter of operation is considered. The skin over and around that portion of the vein which is to be removed is prepared in the usual way. In the case of the internal saphena, the most varicose portion is, in some cases, on the inner side of the knee, in others on the calf; in others, again, it may involve both parts. An incision is carried through the skin along the whole length of the portion of the vein to be excised. When exposed it is dissected up, ligatures applied around each radical of the varicose trunk, and the trunk itself tied above and below. The skin wound is then stitched up carefully, and dressed antiseptically. The operation is simple enough, and one might almost say, there is more in the proper preparation for it than in its performance.

In illustration of the treatment, I will show you, first of all, a patient upon whom I operated for varicose veins and chronic ulcer last August. He is 55 years of age, and a jeweller by trade. He was admitted to the Victoria Infirmary, under my care, with a small indolent ulcer at the lower part of the inner side of the left leg. The internal saphena vein was varicose from the inner side of the knee to close to the ulcer. The skin around the latter was indurated, reddened, and very tender. His foot swelled at night after his day's work. I excised about 8 inches of the vein. The wound healed by primary union, except at the lower end, where a small slough came away. It was noted, the day after the operation, that the ulcer had a somewhat shrunken appearance, and the hitherto congested and tense surrounding skin had become wrinkled and shrivelled looking. He left the Infirmary cured fourteen days after the operation, and twenty-four days after admission. He will now tell you that his leg has never felt stronger, that his foot never swells at night, and that he has no feeling of tenderness about the originally affected area. The cicatrix of the ulcer, as you will see, is perfectly firm, and the tissues around can be pinched up and wrinkled like the healthy skin in other parts. He complains of no "dull" deep-seated pain, nor of any other symptom that would indicate undue pressure or tension from any compensatory dilatation of the deep veins.

A second case was that of a young fellow, aged 23 years.

He had most extensive varicosity of both internal and external saphena veins. I have not seen a worse case. On both sides the internal saphena vein, at its entrance into the saphenous opening, was dilated into a cyst-like pouch, and from this point downwards to the ankle, the vein was extremely tortuous and dilated. The same may be said of both external saphenas—they too were varicose throughout their entire length. His chief complaint was the fatigue and weariness which he soon experienced after any exertion. He was admitted into the Glasgow Training Home for Nurses. I there removed from each leg three separate masses of varicosed veins, and in both cases a piece of the internal saphena vein was excised from close to the saphenous opening. The patient left three weeks after the operation. I heard from him a year later, stating how well he felt, and that he was able to swim, a thing he had not been able to do for some time. A third case is at present in the Infirmary. He is a man, aged 60, and was admitted with varicose veins and ulcers of both legs. After a short but sufficient course of massage, I operated upon him nine days ago. A piece of the internal saphena vein, about 4 inches in length, was removed from the inner side of the left knee, and another piece about the same length from the calf of the right leg. He has not had a symptom since the operation, and his wounds have remained untouched. After the excision both the ulcers and the surrounding skin showed that marked improvement noted in the first case. So far, I can only allude to this case as showing the comparatively little disturbance set up by the operation, but I doubt not the result will be such as that already seen in the patient exhibited.

As illustrating the permanent good effected by entirely removing the disturbing influence of a varicose vein, in a case of chronic ulcer associated with such a vein, I may instance the case of a man, aged 53 years, who was admitted under my care some few months ago with a small callous ulcer on the *outer* side of the ankle. On the inner side of the leg, at its lower part, was a sound well organised cicatrix. This the man told us was the seat of a troublesome ulcer many years ago. At that time it frequently broke down, healing, and then opening again. He came under Sir Joseph Lister, then Mr. Lister, who injected into his large vein some pure carbolic acid. Since that time, now twenty years ago, he had never been troubled with the ulcer opening again.

Successful as was this method of treatment, in this particular case, it is not a practice much in vogue among surgeons

of the present day, nor, I may add, is the somewhat similar practice of the injection of perchloride of iron. The cogent objection to these and all other methods is that they are too limited and uncertain in their action upon the vein. Nothing short of a comparatively extensive excision of a varicose vein or veins can be deemed sufficient, and the more completely this is effected, the nearer will be the approach to a radical cure. Against this method of treatment is alleged the severity of the operation for an affection in itself not dangerous. Without wishing in the least to minimise any dangers that may exist, yet I believe with all due proper antiseptic precautions there is no more danger in this operation than in many others which we recognise as expedient, though not necessary. My last two cases comprise men of ages respectively 55 and 60. Their temperatures did not waver a degree, and they were completely free from all symptoms. I do not say that every case of varicose veins would be a suitable one for operation, and certainly upon none would I operate before getting the parts into a healthy condition. To attempt to excise a vein where extensive cedema exists, where the skin is eczematous, where the ulcer, if present, is foul, where there is suppuration or any active inflammation, erysipelatous, or otherwise, is only to run unwarrantable risk, and court failure. I fear much of the disrepute into which this operation has fallen since its introduction by the late Mr. John Marshall in 1875, has arisen from want of proper attention to these important preliminary details.

A SOMEWHAT UNUSUAL RESTORATION OF A FRACTURED INCISOR TOOTH.

By OSWALD FERGUS, D.D.S., GLASGOW.

IF the following case proves of interest, its doing so must be mainly from the rarity of the occurrence rather than from any operative steps that were undertaken to restore the injured organ to its former appearance, and to a measure of its accustomed utility.

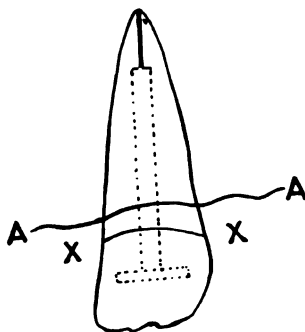
On the morning of the 29th January I was consulted by Master G. W. S., æt. 11, who gave every indication of acute suffering, as well as of considerable nervous excitement. On his arrival at school, at an earlier hour, he had violently collided with one of his companions, the result being that the

left upper central incisor was snapped, about one-third of the crown remaining *in situ*, while two-thirds were knocked off. Such a loss at any time must be considered as serious, and doubly so in a mouth where development is still in progress, and if aggravation were required it was furnished in the incisors being unusually prominent, a feature well developed in more than one member of his family. My first enquiries were as to what had become of the detached incisive portion, which fortunately the patient had had the presence of mind to recover and bring with him, and a brief examination sufficed to show that the line of fracture was a clean one. Attention was next turned to the mouth, and on carefully removing a small quantity of blood it was found that the broken surface there corresponded to the part now in my possession. The pulp was, as might be expected, fully exposed and slightly protruding from the opened cavity, while there was slight pain upon gentle pressure, due doubtless to the shock that the tooth had received in its socket from so violent contact. The only misgiving that presented itself was as to the condition of the root, more especially as to its complete formation towards the apex, but observing that the other members of the series were well advanced in their formation, it was concluded that there would not be much trouble in this direction, a surmise that happily proved an accurate one. The patient was now thoroughly anæsthetised by means of nitrous oxide, the pulp carefully reamed out with a Gates-Glidden drill, and the chamber cleared more thoroughly with an ordinary barbed nerve broach, the whole being douched with bichloride solution (1 in 1,000). A temporary dressing of chloride of zinc was then introduced into the vacant pulp cavity for the purpose of mummifying the dentinal fibrils, and the patient dismissed till the afternoon.

In his absence, the detached portion, which had been kept moistened in carbolic solution, had a groove or gutter cut in the dentine to as great a depth as was considered safe, and into this was fitted a gold T-piece, the stalk being formed of the ordinary crown wire, and the head soldered to it.

At 4 P.M. the patient returned, and on removing the dressing it was noticed that practically no oozing had taken place, while sensibility on pressure had disappeared. The apex of the root was then closed with a small piece of gutta-percha moistened in chloro-percha, dusted with iodoform, and the pulp canal enlarged in the usual way with a set of graduated drills, till wide enough to take in the stalk of the T-piece. The parts of the tooth being now approximated in their normal situa-

tions, the adjustment was found to be as perfect as had been anticipated ; a little of "Richardson's crown setting" was therefore mixed to the consistency of fine cream, the T-piece first cemented into the broken fragment, and that again with its now attached gold stalk finally adjusted to its old place.



The dotted line shows the position of T-piece. A A represents the gum margin, while the line at X X gives a sufficiently correct idea of the seat of fracture.

What the ultimate issues may be it is, of course, beyond the question to predict, but of the immediate effects one may speak with a little more confidence ; and while close and minute inspection reveals a well defined crack or mark at the seat of junction, this is not apparent when the patient is removed to the distance at which ordinary conversation is enjoyed. If in time, as is probable, the piece may again break away, restoration may be effected more securely, the root being still available for a more durable, though more artificial substitute.

THE RELATIONS OF OPHTHALMOLOGY TO MEDICINE AND SURGERY.

By FREELAND FERGUS, M.D.,

Surgeon to the Glasgow Eye Infirmary ; Lecturer on Ophthalmology.

(Continued from p. 100.)

SUCH speculations, however important and interesting as we acknowledge them to be, are not quite within the sphere of our present inquiry. We must now turn to what is ascertained and known as to the nerve supply regulating the movements of the iris. This is certain, that stimulation

of the third nerve produces contraction, as does also stimulation of the nucleus of the third nerve in the aqueduct of Sylvius. As we have already seen, Starr,¹⁶ as also Pick,¹⁷ described two centres in the floor of the third ventricle, one of which controls the movements of the iris, while the other, on stimulation, causes accommodation. It is of interest to know that while contraction of the pupil takes place, and always must take place for the act of convergence, it does not necessarily do so for accommodation. Indeed, unless the act of accommodation is accompanied by convergence there may not be contraction. This fact may easily be made the subject of physical experiment (see Adamuk and Woinow, *Archiv. f. Ophthalm.*, xvii). In high degrees of myopia, however, this experiment is made for us. Take, for example, myopia of 5 inches: on bringing an object near the eyes, it is observed that the pupils contract, although it is only when the object attains a distance of only 5 inches from the eyes that the accommodation comes into action. On the other hand, for distant objects accommodation may be brought into play by the simple placing of a concave lens before the eye without any contraction taking place, a circumstance which seems to point conclusively to the opinion that contraction of the pupils depends upon convergence and not on accommodation. Moreover, in old people, in whom the accommodation is *nil*, the pupils in health always contract on fixation for a near object. Next to the variation towards contraction caused by convergence, the most frequent stimulus for contraction is the action of light on the retina. Stimulation of one retina causes contraction of both pupils in the normal condition of health. Macewen is of opinion that stimulation of one retina causes contraction of both pupils; but the pupil of the eye stimulated contracts more thoroughly and more quickly than that of its fellow on the opposite side. Mr. Swanzy, however, is of opinion that both pupils contract equally. So far as our own observations go we are in accord with Dr. Macewen. If one optic nerve is divided, stimulation of the retina on that side will, of course, produce no contraction of the pupil of that eye. Stimulation of the other retina, however, will cause contraction of both irides. The connecting link between the second nerve seems to be fibres coming from the corpora quadrigemina. Thus Meynert, quoted by Ferrier, describes radial fibres passing inwards through the central grey matter, connecting the proper optic centres of the corpora quadrigemina with the oculo-motor nucleus. The consensual movements of the irides would seem also to indicate that the two centres, one on each side, are

connected together by fibres. This must either be the case, or else each retina must stimulate both contracting centres—that on the side of the eye stimulated by the direct fibres, the other by those which cross in the chiasma.

As to the dilatation of the pupils, the nerve supply is perfectly well understood, yet the mechanism through which that nerve supply works is not so well ascertained. It is generally believed that there are special dilating muscular fibres, which were first described by Henle. In reference to this Swanzy, quoting Schwalbe's opinion (*Handbuch der Sinnesorgane*), says the most reliable investigations have distinctly proved that there is no such thing as a special dilator muscle. On referring to that author's *Lehrbuch der Anatomie Des Auges*, published at Erlangen in 1887, we find the following words:—"Innerhalb der Pars uvealis finden sich endlich noch muskulöse Elemente, dem glatten Muskelgewebe angehörig, sämmtlich innerhalb der Gefässchicht, nämlich (1) ein mächtiger auf die Pupillarzone beschränkter circulär-faseriger *Musculus sphincter pupillæ* und (2) aus seinem äusseren Rande sich abzweigende dünne radiare Bündel, welche beim Menschen nur schwach entwickelt sind und kaum den Namen eines *M. dilator pupillæ* verdienen." At pages 208 and 209 of the same book, Schwalbe gives an exceedingly clear statement of the chief points in the discussion, with copious bibliographical references. All seem agreed that the part of the iris concerned in dilatation is the posterior layer, for in many experiments by different observers this membrane is the only part of the iris which is not thrown into folds during the act of dilatation.

Two theories are possible, or at any rate have been expressed as to the dilatation. According to the first, it occurs as a direct consequence of muscular stimulation; according to the second, it is a consequence of inhibitory influences coming from the cervical sympathetic. These influences may again be of two classes, and may affect either inhibition of the contracting power of the third nerve or vasomotor contraction of the vessels of the iris. To those who deny the existence of a special dilator muscle, it is necessary to assume some elastic force in the iris sufficient to cause dilatation when the opposing contracting resistance is removed. This is certain, however, that the centre for dilatation is in the medulla oblongata, from which stimuli pass down the spinal cord, and at length reach the cilio-spinal centre. Section of the cervical sympathetic on one side of the neck is followed, as is well known, by contraction of the pupil on that side and dilatation of all the

blood-vessels, causing flushing of the face and increase of all the secretions. Stimulation of the cut end, on the other hand, produces dilatation. Macewen, in the paper already referred to, states that certain of the dilating nerve fibres find their way to the eyeball by the trigeminus.

It is to be remembered also that certain authorities hold that there are higher centres controlling dilatation and contraction. That producing dilatation is supposed to be near the frontal convolutions, while that for contraction is supposed to be connected with the angular gyrus (see Ferrier's *Croonian Lectures on Cerebral Localisation*). If such centres exist, their interest is of little consequence from a clinical standpoint.

Among the conditions of the pupil which are of importance to the physician, probably the best known is the dilatation caused by aortic aneurysm, or sometimes from other intra-thoracic mischief, such as malignant tumour. Sometimes we have even seen exophthalmic goitre accompanied with dilatation of one or both pupils. It is possible that this latter is rather the expression of some vasomotor disturbance than of irritation of the cervical sympathetic. When aneurysm presses upon the cervical sympathetic, the dilatation which it produces is due to irritation. Did complete paralysis take place, the pupil would be contracted; so that in the advanced stages of aortic aneurysm we are not surprised to find that sometimes dilatation is absent.

Dr. Macewen has pointed out that mydriasis (*stabile*) takes place when the brain functions are suspended, as in severe shock from injury, or when there is exceedingly severe mental emotion. This condition passes off as the brain resumes its function; also, he says that in severe hæmorrhage up to a certain point there is cerebral irritability, and that in that condition the pupils are contracted. If the loss of blood is still greater, tending to produce syncope, the brain function is suspended and the pupils dilate. As the patient passes out of this condition, and the brain gradually assumes control, the pupils again begin to contract. On precisely the same principles he explains the contraction of the pupils in the first stages of opium and alcohol poisoning, and in chloroform narcosis. In alcohol poisoning it is also to be noted that irritation of the skin will produce dilatation of the contracted pupil. It does so because the skin reflexes are connected with the cilio-spinal centre and the cervical sympathetic. If either opium, alcohol, or chloroform is pushed to such an extreme degree that it causes suspension of the brain function, then dilatation of the pupils takes place. The clinical importance of Dr. Macewen's

suggestion cannot well be overestimated, for thus it appears that it is the pupil rather than the pulse or the breathing which ought to be watched during the administration of chloroform (see Macewen in the discussion on Anæsthetics, *Glasgow Medical Journal*, 1890). We believe that he is perfectly right that a patient under the influence of chloroform or of opium is in extreme danger when the pupils dilate, and that if prompt measures be not at once taken death is imminent. The dilatation indicates suspension of the brain functions, which is certain to extend to the cardiac and respiratory centres if prompt measures be not at once taken. Injury to the brain substance itself or extreme pressure, as from a large effusion of blood, may also produce dilatation of the pupils. The cases noted by Macewen in which this has occurred have also been accompanied with the supervention of coma. Again, when the injury is not so severe or the pressure so great, it is possible to have contraction of the pupil.

In certain cases, again, we must remember the possibility of a localised lesion producing either dilatation or contraction. Again, we must remember that the nerves which produce dilatation or contraction may be injured or irritated in their courses; moreover, it is possible for vascular changes accompanying these lesions also to produce changes in the vessels of the eyeball. It is possible for a lesion on one side to produce dilatation of both pupils, either from pressure or from the suspension of brain function. As in dealing with ocular motor paralysis, we saw that the concomitant symptoms were of the first importance, so also may it be said that they are here. The great point of importance is that the contraction or dilatation of the pupil is of much importance in diagnosing, or rather in estimating, the extent of shock, and, generally speaking, of the cerebral condition.

FUNCTION OF ACCOMMODATION.

This seems to us the most fitting time to discuss disturbances of the accommodation, a function which is closely connected with contraction of the pupils and with convergence. Diseases of accommodation may be the expression of paralysis of the oculo-motor nerve, while on the other hand, functional diminution of the power of accommodation may give rise to such symptoms as headache. To this subject we will return when we speak of those symptoms which ophthalmologists have classed together under the name of asthenopia. In the meantime, we must first direct our attention to the methods

of investigating this function, and to such anomalies of it as are within the range of the physiological normal.

It is beyond our present purpose to say anything about the development of our knowledge of the mechanism. Suffice it to remark that, by the researches of Young, Cramer, Donders, and Helmholtz, it has been proved beyond a doubt that the act of accommodation depends on an increase in the curvature of the anterior surface of the lens, brought about by contraction of the ciliary muscle, which is supplied by the third nerve.

Normal Accommodation.—From earliest times it must have been known that as people advanced in years their near point of distinct vision became at a greater distance from the eye. It is to Donders, however, that we owe our present knowledge. He seems to have been the first to make accurate measurements and to enunciate the laws of accommodation. He showed, moreover, the connections which subsist between this function and the various forms of ametropia. According to his investigations (*Accommodation and Refraction of the Eye*, New Sydenham Society, London, 1864), a patient 10 years of age has 14 D of accommodation; at 15 has 12; at 20 has 10; at 30 has 7; at 40 has about $4\frac{1}{2}$, at which time the eye may be said to become presbyopic. After 40 the power of accommodation gradually diminishes till it may be said to be *nil*. The most convenient way of testing the range of accommodation is by finding the nearest point at which the patient is still able to see small type. Allowance, however, must be made for any existing error of refraction, and before a physician can rely upon the results of his examination, it is necessary for him to be able to estimate such errors. This is a matter, however, which, for the most part, lies beyond the province of the physician, and we therefore deem it quite beyond the scope of our present inquiry to give a detailed account of the methods employed in such examinations. If then, a patient is made emmetropic by glasses, or is so naturally, the test above given is amply sufficient.

There are many diseases which give rise to a loss of accommodation, or, to put it more correctly, to a diminution of its range. Thus we find it lessened in all diseases or conditions which involve great exhaustion. Thus, during lactation nursing mothers often suffer from pain and weakness when using their eyes; this frequently depends upon loss of accommodation. Again, many persons recovering from severe illnesses, such as typhoid fever, small-pox, pleurisy, &c., manifest the same symptoms. In diphtheria, too, we also find it, but here it is more probably depending upon the specific action of the

diphtheritic poison. In another class of cases, it may be a factor in an oculo-motor paralysis, and may therefore occur either as an isolated symptom or in conjunction with paralysis of other muscles in locomotor ataxy and sclerosis.

The following case from our note-book seems illustrative of this condition:—A gentleman, aged about 50, some years ago noticed that he was becoming old sighted, and at that time got a pair of glasses 2 D convex, which allowed him to see for reading comfortably. Of late the symptoms have again returned; he is not now able to see at all well with the glasses previously supplied. Moreover, he suffers from vertigo, and has once or twice, for very distant small objects, seen double. He first became aware of the diplopia when looking at a small object on a distant hill; he has also become deaf in one ear. On examination, we find that the accommodation is much less than it ought to be at his time of life, the normal amount being $2\frac{1}{2}$ D. The irides respond perfectly well both to light and to convergence. The visual acuteness, when tested by Snellen's distant types, is perfectly up to the normal standard, and this although both nerves seem pale when viewed with the ophthalmoscope. On testing with Maddox test, in the way we have already described, it is found that he has a latent diplopia with crossed symptoms. Evidently here we have to do with a divergent strabismus, or rather a tendency to that condition, which, taken with the loss of accommodation and the deafness, we cannot but regard as grave. It ought to be mentioned that his ears have been carefully examined by a most competent aurist, who says that the deafness depends upon some atrophic condition of the nerve of that ear. There is, however, no facial paralysis.

ASTHENOPIA.

Under this heading are grouped a number of symptoms which may depend upon somewhat varied causes. These symptoms are chiefly pain in reading or writing, or even pain when any effort of vision is made, a difficulty of vision. Sometimes there is headache or pains which are thought to be neuralgic, almost invariably there is lachrymation, and even chronic and perhaps severe conjunctivitis. Amongst the various causes of this condition we would notice presbyopia, hypermetropia, all the forms of astigmatism, loss of power of convergence, and in certain cases myopia. These facts are, as a rule, admitted by all authorities. There are two, however, to which we would direct special attention—viz., to loss of power of con-

vergence and to myopia. Ever since the days of von Graefe (*Archiv. f. Ophthalmol.*, Bd. iii) most authorities have admitted that there is such a thing as muscular asthenopia, and already we have given the case of Miss M. as illustrative, in our opinion, of this condition. We have observed several like it both in private and public practice, and our observations have been such as to leave absolutely no doubt in our mind as to the nature of the condition. Within the last year, however, Roosa has denied the existence of this form of asthenopia, and quotes Javal as agreeing with him. Landolt has published a paper in his *Archives* for this year, discussing the whole question, and describing several cases very similar to that of Miss M. He has no doubt whatever as to there being such a thing as convergence asthenopia. Several years ago Landolt also published a paper, which appeared in his own *Archives* for that year, maintaining that there was such a thing as asthenopia arising from a want of power in the external recti muscles. We cannot say that we have seen any well defined case of such an anomaly, unless two patients who were the subjects of epilepsy, and in whom the symptoms might well be referred to other causes.

Stevens¹⁸ of New York, in *Knapp's Archives*, has published a number of papers which show a great amount of very careful observation. In his investigations he seems to go quite to the other extreme, for he gives several cases in which he found epilepsy associated with insufficiency of the muscles. Here he regarded the muscular defect as the exciting cause of the epilepsy, and was of opinion that many such cases could be cured either by tenotomy or by advancement. The report of a commission which has subsequently inquired into his cases does not seem to be of the same opinion. We have on one occasion advanced an insufficient external rectus, according to Stevens' plan, for the relief of epilepsy; the patient was somewhat better for the first three months, at the end of which time he was as bad as ever.

In myopia we may have asthenopia either as a concomitant of the myopia itself, or accompanying some convergence or divergent disturbance which frequently is associated with myopia. If it be a divergent or convergent asthenopia, then the patient is likely to suffer at times from diplopia. When asthenopia is due to the myopia *per se*, then it is most likely due to the want of symmetrical action between the functions of convergence and of accommodation. A quotation from a paper which we wrote on the "Etiology of Strabismus," and which appeared in the *Glasgow Medical Journal* for

1889, will probably make our views on this matter clear: "Disassociation of the efforts of convergence and of accommodation is entirely a matter of education, and one which very frequently causes the patient a good deal of suffering. Over and over again I have found young myopic adults, who had not always been myopic, but who had become so, suffering intense asthenopia when looking at their remote point of vision. I have sought in vain for an explanation of this asthenopia in an uncorrected astigmatism, and have not found it. Take, for example, the following as typical of this group of cases:—A patient, aged 18 years, is brought, in whom there exists a myopia of 2 D. Surely a patient such as this ought not to have any difficulty for work at 20 inches, or even 15 inches, or less. Well, that patient suffered most severely whenever the eyes were used for any near at hand object. Perfect comfort, however, was restored so soon as the eyes were made emmetropic, and thereby the normal relationships between the accommodation and convergence restored." (See also Dr. Berry, *Subjective Symptoms in Eye Diseases*, 1886.)

Before leaving this part of our subject, it is perhaps well to note that Stevens' investigations have brought into use three words which are likely to prove serviceable. When there is a convergence disturbance, the condition is called "esophoria" when there is a difficulty of inward movement; "exophoria" when there is a difficulty of outward movement; "hyperphoria" when there is a tendency to vertical diplopia.

VISUAL ACUTENESS.

Before testing the acuteness of vision, the physician must satisfy himself that all manifest errors of refraction are corrected, because if such exist it is quite possible that the visual acuteness may be very much lessened apart from any diseased condition of the eye. Moreover, there are certain diseases of the eye which reduce the visual acuteness, and which are of very little interest to the physician. Such are cataract, glaucoma, separation of the retina and cyclitis. The causes of diminution of vision which are of importance to the physician are certain forms of retinitis and choroiditis, atrophy of the optic nerve, as also inflammation of it. These will be discussed more in detail when we come to speak of the fundus oculi and of ophthalmoscopic examination. In the meantime, however, it may be remarked that there are certain conditions of the optic nerve in which the ophthalmoscope reveals little or no pathological change, but in which the

history of the case, taken with the visual acuteness, makes us perfectly certain that the optic nerves are suffering from a low form of neuritis, to which ophthalmologists give the name of retro-bulbar neuritis. The following case, amongst many which we have personally observed, may be taken as typical of this disease:—C. D., aged 39, has all his life been more or less short-sighted, but has of late observed that his vision has become so bad that he is unable to read ordinary type. On examination with the ophthalmoscope, it is found that in each eye he has a myopic astigmatism of about 2 D; the fundi otherwise seem healthy, or at least quite within normal limits. It is noticed that the nerves are perhaps a little pale, but certainly not more so than is compatible with health; their margins are quite distinct; and there is, as we would expect in myopia, the formation of a small staphyloma posticum in each eye. So far, then, we are not entitled to say from the examination of the fundus that there is any affection of the optic nerve. On approximately correcting his error of refraction, we find the visual acuteness so little that even the largest type of Snellen's distant scale cannot be discerned. Further inquiry reveals that our patient is much addicted to tobacco and alcohol, and we have no doubt that our patient is the subject of retro-bulbar neuritis. Other clinical evidence confirmatory of this opinion was afforded by the fact that in both eyes colour sense was most deficient. On examining him with bright green, scarlet, and yellow, he declared them all to be white, and was not able to see any difference between them further than might be accounted for by the variations of pigment saturation. When we speak of the colour sense we shall have to describe such phenomena at considerable length.

Method of Testing Visual Acuteness.—By far the best method is that of Snellen,¹⁹ which is the one now almost universally adopted. It depends upon what is called the smallest angle of vision, for which he tries to fix a normal standard. This is not the place to give any account of Snellen's researches; a very good account of them may be found given by himself and Landolt in Landolt and Wecker's *Traité Complet d'Ophthalmologie*, p. 471. Practically speaking, there are two sets of types—one for distance and the other for near at hand. As the latter is more a test for accommodation than for visual acuteness, we content ourselves with a description of the former. In it we find letters which the normal eye should recognise at 6, 8, 12, 18, 24, 36, and 60 metres. The patient is placed at 6 metres from these types, one eye being occluded from the act of vision, and any grave error of

refraction corrected. This occlusion is managed not by the patient shutting the eye, nor by his pressing his fingers against it, but by simply holding something opaque in front of it. These matters being arranged, the patient is asked to read as many of the letters as he can. If then, standing at 6 metres from the types, he is able to read those letters which are marked as being read by a normal eye at that distance, we say that his vision is equal to $\frac{6}{6}$ —that is to say, it is normal. Suppose, however, that with the eye which is being examined he can only read those letters which ought to be seen at 24 metres, we say that his vision is equal to $\frac{6}{24}$. Having ascertained the vision in one eye, we then proceed with the examination of the other, and note for each separately the visual acuteness. Should the patient be unable to see even the largest letters at 6 metres, we allow him to go gradually towards them, until he reach a distance at which he is just able to see the first one. Let us suppose that he requires to go within one metre of the letters, and that then he only can see the largest—that is to say, the letter which ought to be seen at 60 metres—we say that his visual acuteness is equal to $\frac{6}{60}$. If he is not able to see any of the letters, we ascertain if he has any perception of light. This is best done by turning him round to face a diffuse and not very bright light, such as that of an ordinary window. The hand of the surgeon is then rapidly passed to and fro in front of one eye only while the other is occluded. If the patient is conscious of these movements, then we say that he has perception of light; if he is not, then he is, technically speaking, blind. Care, however, must be taken even in this examination, for sometimes the patient, although not aware of any impression, still knows well enough what is being done, and every now and again indicates that something is passing in front of his eye. Such, then, is the method of testing the visual acuteness; it is a factor which is of the highest importance to the ophthalmic surgeon, and is not without importance to the physician. Speaking more particularly of those states in which impairment of vision has a significance to the physician, we would note inflammation and atrophy of the optic nerves, retinitis albuminurica, retinitis from diabetes, and leucocythæmia, hæmorrhage into the retina or vitreous humour, embolism of the central artery of the retina, amblyopia, as after a severe hæmorrhage, or as sometimes occurs in cardiac diseases.

Here it may be mentioned that in inflammation of the optic nerve there may be little or even no diminution of vision. We have seen a case of most pronounced and undoubted

papillitis in which the vision was $\frac{2}{30}$, and such cases are not infrequently reported. We believe that all these cases are in their early stage, the stage of effusion; as soon as consolidation with cicatrisation sets in, vision must become more or less impaired. On the other hand, it is not impossible to have apparent atrophy of the optic nerves with almost normal visual acuteness. This we believe to be due to the atrophic process attacking the interstitial tissue of the nerve, and leaving the parenchyma almost intact. We have already referred to Abadie's observations on this point.

The degree to which retinitis, choroiditis, or hæmorrhage will affect the visual acuity depends upon the extent of the lesion and the part of the retina involved. Thus, when the macula participates in the disease, vision is much more compromised than when the lesion is in the periphery. When the defect is due to embolism or thrombosis, its onset is exceedingly sudden, and is of course permanent and total, rendering the patient blind of the eye affected. Sometimes in embolism only one small branch of the retinal artery is plugged, and in that case we have total blindness only in one part of the visual field of the affected eye.

In cases of cardiac disease, and sometimes in angina pectoris, we have momentary, or sometimes even more or less prolonged suspension of vision in one or both eyes. Thus, a patient over 70 has at times fits of blindness; he is the subject of aortic valvular disease, but says that when such attacks supervene, he can always restore sight by violent friction on the eyes through the closed eyelids. This symptom may be referred to one of two causes—it may be due simply to suspension of function from an insufficient supply of blood to the choroid and retina, or it may be due in his case to some vaso-motor disturbance, for he suffers from certain spasmodic attacks which, as described by him, have a close resemblance to fits of angina pectoris.

In certain cases loss of sight is one of the features of epilepsy, and it is sometimes of purely hysterical origin. Of the latter, the following is perhaps one of the best cases which has ever come under our observation:—A. G., a girl, aged 18, has for some time back suffered severely from difficulty of vision, her chief complaint being of pain when reading or writing. As is not infrequent in such cases, she is also suffering from chronic inflammation of the margins of the eyelids. It was noted by us, at the time of our first examination, that the patient was of the neurotic temperament; but what facts, either in her own history or in that of her family, led us

to such a conclusion, we cannot at this time recall. The account given us by her medical man amply confirmed our opinion, for he informed us that for a period of two years he had been treating this patient for all sorts of nervous and, as he thought, hysterical ailments. One night, about six months after our first seeing this patient, we were suddenly called out of bed by her brother, who told us that his sister had all of a sudden become blind. We at once went with him, and found her lying in bed perfectly motionless and moaning slightly, but able to answer when spoken to. On holding up a bright light in front of her eyes, which were both widely open, she declared that she saw absolutely nothing, although we observed that both pupils responded at once to light. No ophthalmoscopic examination was possible, the patient declaring that she was unable to sit up, and we being unprovided with any proper light. We had no doubt at the time of our examination that the symptoms were of an hysterical nature, and in two days the patient recovered her sight perfectly. Subsequent isolation with massage restored that patient apparently to perfect health.

THE OPHTHALMOSCOPE.

We now come briefly to review the information which careful ophthalmoscopic examination affords to the physician. It is not our intention to say anything as to the methods of using the ophthalmoscope, nor to enter into any details as to the optical conditions which must be observed before any such examination can be made. It is enough for our purpose to mention what information of a more general nature an expert examiner may obtain from the examination of the fundus oculi characteristic of diseases.

Let it be remembered that the structures seen by the ophthalmoscope comprise the lens, the vitreous body, the retina, the choroid, and the optic nerve with its blood-vessels. The lens may also be investigated by the method of focal illumination, which method is also used for examining the cornea.

Certain conditions, such as optic neuritis and retinitis, are common features of very varied pathological processes, but other ophthalmoscopic appearances are more or less characteristic of specific disease conditions. Thus, retinitis albuminurica is, in certain of its forms, absolutely unmistakable. Again, the cherry spot in the macula lutea is perfectly typical of embolism or thrombosis of the central vessels of the retina.

and at once attracts attention to the condition of the vascular system. Although the normal fundus is well described in most text-books of ophthalmology, we think it necessary to describe it briefly. Its general tint is somewhat of a rosy red, varying within the limits of health to a light orange. These variations depend on the amount and opaqueness of the connective tissue. Thus, in high degrees of hypermetropia, it is not infrequent to find that there is a certain paleness of the fundus, due to the development of connective tissue in the choroid. To some extent the exact tint varies with the source of illumination. This is best seen, however, on examining the optic nerve. This structure, when examined by gaslight, presents in health a pinkish colour; but when examined with a beam of ordinary daylight, it appears very much paler—in fact, so pale as to convey the idea of atrophy to a person wholly accustomed to examinations by gaslight. Hence, it is important that all ophthalmic clinics should be provided with suitable apparatus for conducting these examinations by ordinary daylight. The apparatus necessary consists of an ordinary dark room, with a slit cut in the shutter at such a height as to allow the passage of a beam of ordinary daylight at the level of the patient's head.

The structures which it is of the utmost importance to examine are the optic nerve, the vessels of the retina, and the retina itself. A beginner has frequently difficulty in finding the optic nerve. He is most likely to succeed by first getting hold of one vessel, and following it till he comes to a point at which several vessels emerge—that point is the optic disc. The optic disc is, as we have already said, when examined by daylight of a pinkish colour. Its margins are clearly defined, and, generally speaking, it has what has been termed a physiological cupping, which may vary in extent from being practically *nil* to involving almost its entire extent. Often at the bottom of this cup traces of a very fine mesh work may be observed—the so-called lamina cribrosa. This is simply the fibres of the sclerotic continued over the nerve, but divided into mesh work, so as to give passage to its fibres. Surrounding the optic nerve we generally have a narrow white bordering—the scleral ring—which is due to the fact that the vascular tissue of the choroid does not come quite close to the papilla, but stops a little way short of it, thus leaving a portion of the sclerotic bare, and therefore discernable on ophthalmoscopic examination. The scleral ring is not so well marked at the nasal aspect of the papilla, because most of the fibres from the optic nerve pass out in that direction, and hence the ring is

somewhat hidden from view. Allied to this condition we have, but chiefly in cases of myopia, the appearance known as staphyloma posticum. This is generally found to the macular side of the optic disc, and is as a rule crescentic; it may occur, however, either at its upper aspect or at its lower, and in certain cases extends right round the nerve. Till recently it was thought to be the expression of a low form of inflammation (sclerotico-choroiditis posterior), but Nuel of Liege has, in *Landolt's Archives* of this year, attributed it to a tearing away of the choroid from its insertion near the disc, due to the mechanical lengthening of the eyeball in myopia. The matter is one of considerable ophthalmic interest, but is quite beyond the province of our present inquiry—it suffices for our purpose to call attention to the fact of its existence.

The nerve fibres in their passage through the papilla, as a rule, lose their sheath; sometimes, however, it is retained, and gives rise to a white patch in an otherwise transparent retina. The patch itself appears dense, is evidently of a fibrous nature, and, as a rule, has feathery margins. If it has once been seen an examiner can never again mistake it; it is wholly different from the yellowish smooth patch due to a piece of bare sclerotic, and from any other whitish pathological deposit in the retina.

Having examined the disc, and noted its colour and the distinctness of its margins, attention should be directed to the macula lutea. This is an area of the retina situated about a diameter and a half or two diameters to the outer side of the disc and rather below its level. Sometimes it is surrounded by a glittering halo, due probably to reflection from the edges of the fossa. At the centre of the macula there is generally to be seen the fovea centralis which occupies the part of the retina in the direct line of vision. When visible, which it is not always, it may be distinguished by its being paler than the rest of the macula. In this area there are no visible vessels, although the structures are very richly supplied from the choroid.

As for the retinal vessels, it may be observed that in health the veins are slightly greater in size than the arteries, and as a rule are not tortuous in their course. Sometimes, however, there is a tortuosity in the plane of the retina. It is to be remembered that what is, as a rule, seen, is not the vessels, but merely the column of blood in them. We may find, and that within the limits of health, that the walls of the vessels are more or less opaque. On the other hand, the thickening of the walls may be so great as to be of pathological significance. At times

so great is the thickening of the walls that the column of blood appears as a thin red line. This is the condition generally described as sclerosis.

Pulsation is very frequently seen in the veins as they emerge from the substance of the nerve, and at times it is seen along the entire length of the vessel. As a rule, such pulsation is not pathological, but it almost invariably is when seen in the arteries. We remember having seen it very well marked in a case of aortic regurgitation. Arterial pulsation, apart from such a cause as this, is of more importance to the ophthalmic surgeon than to the physician, for it is generally associated with incipient glaucoma. (See Berry, *Ophthalmoscopic Diagnosis*, 1891.)

CHANGES IN THE OPTIC NERVE.

Gowers (*Medical Ophthalmoscopy*) divides such changes into two groups—viz., (1) Those characterised by increased vascularity or signs of inflammation; (2) those changes in which we have diminished vascularity and signs of wasting.

The first group he divides into the following three classes:—

1. Simple congestion, in which there is undue vascularity, redness, softening, but no obscuration of the edges of the disc, and no swelling.
2. Congestion with œdema; here there is increased redness with slight swelling, the edges of the disc are completely obscured to direct examination, but not so completely to indirect.
3. Papillitis; there is redness and swelling with obscuration of the disc, which is complete, both to direct and to indirect examination.

Those pathological conditions accompanied by diminished vascularity are divided by Gowers into the following classes:—

1. Simple atrophy; here we have increased pallor from the very first.
2. Congestive atrophy; this is secondary to congestion, the pallor slowly succeeding simple congestion.
3. Neuritic atrophy following papillitis.
4. Atrophy as a consequence of choroiditis and retinitis.

None of these inflammatory affections of the nerves calls for special description, with the exception of papillitis. This condition, which has been known ever since the days of von Graefe, is characterised by various signs, according to the stage at which it has arrived. Thus, in the very early period, there may be little more than slight effusion, with hyperæmia of the disc and a tendency to the filling up of the congenital cup, so that the lamina cribrosa, if before visible, becomes indistinct. In this stage it can scarcely be differentiated from simple congestion of the nerve. Be it

remarked, however, that although the first stage of papillitis is simple congestion, the number of cases of congestion which go on to papillitis is comparatively trivial. In the second stage, which is accompanied by cedema and by considerable cellular proliferation, swelling becomes more pronounced. On this account the colour, which has till now been of an intense red, or even dusky appearance, may become paler from the formation of fibrin. Up to this point vision is often little impaired—we have seen it as much as $\frac{2}{10}$ Snellen—but in all such cases it is common to find the sense of colour involved, and there may be scotoma and, in exceptional cases, hemianopic defect. Should the cause of the disease be removed, or spontaneously cured, the inflammation of the nerve may subside and leave the vision little disturbed. The majority of cases do not run such a favourable course. The swelling increases, even extending into the retina to such an extent as, in some cases, to approach the macula. After lasting a period varying from four to eight weeks, or even longer, subsidence commences. This is always accompanied by cicatrization and, as the nerve fibres become involved in the cicatricial tissues, the vision becomes rapidly worse. Gradually the red tint of the nerve disappears altogether, and gives place to the pallor characteristic of post-papillitic atrophy.

In extreme cases, it is not uncommon to find in this stage the formation of white spots in the neighbourhood of the macula, which somewhat resemble those of albuminuric retinitis. One case which we saw at the Royal Infirmary had these spots to perfection, along with atrophy of both nerves. The history was as follows:—The patient, a girl of about 16, had a year and a half before we saw her a very severe illness, the chief symptoms of which were severe vomiting with intense headache and great prostration. This lasted for a period of several weeks, and as she got better the eyesight gradually began to diminish. At the time of our examination all she was able to do with either eye was to count fingers at about 2 feet. We formed the opinion that the illness had most probably been some form of meningitis accompanied with papillitis, of which the appearances in the eye were the natural consequence. There certainly was no albumen in the urine. These macula spots are the result of fatty degeneration of the retinal elements; they are probably due to the same cause in retinitis albuminurica.

Post-papillitic atrophy is characterised by the paleness of the nerve, which has sometimes even a bluish tint in it, by the smallness of the vessels, and by the irregularity of the nerve margins. In advanced cases there may be pathological

cupping of the disc. This cupping is distinguished from glaucomatous cupping by the fact that the vessels do not seem at the edge of the disc to be broken in their course. Two cases seen by us in the wards of the Royal Infirmary, and recorded by Dr. Alex. Robertson in the *Journal of Mental Science* (1887), are almost certainly cases of post-papillitic atrophy. Both cases had been the subject of extreme lead-poisoning, indeed to such an extent as to cause great mental disturbance, both patients being insane, or at least manifesting nerve symptoms of the most severe kind. In one case it is noted that both optic nerves were in a state of white atrophy, while in the other it was recorded that both nerves were oval and pale, but not markedly atrophic, with thinning of the choroid round the margins of both discs. It is possible that in both cases the atrophy may have been primary, but most cases of lead atrophy are preceded by a neuritis more or less intense. Gowers²⁰ says:—"The occurrence of neuritis coincides with symptoms of cerebral disturbance, headache, convulsions, delirium, &c." Certainly these patients had all those symptoms. It is not recorded that there was any albumen in the urine. More recently we have seen a case which, from the smallness of the vessels, the irregularity of the nerve margins, and from the contraction of the nerve, we cannot but regard as a case of post-papillitic atrophy. The sight began to fail after a severe illness which was accompanied by severe headache and vomiting. On first seeing the patient, the nerves were very indistinct in outline, red, and slightly swollen. At a subsequent visit, we found that the nerves had become extremely pale, and that the arteries and veins were very much diminished in size. The patient continued to suffer from severe headache and considerable drowsiness. There was, however, no other paralysis or obvious nerve lesion. The veins in papillitis may or may not be distended. This, to some extent, depends upon the cause of its occurrence. Thus, in a slow growing tumour, they are less likely to be distended than in abscess of the brain, or in extensive and acute meningitis. As a rule, distension always takes place during the period of cicatrisation.

Atrophy of the optic nerve may occur as a primary lesion—that is to say, without any preceding inflammation, or at least without any that can be seen. It may also succeed any of the less severe forms of optic neuritis.

This is not the place to discuss the various theories as to the origin of optic neuritis, for that belongs more especially to the department of ophthalmology. It certainly cannot be entirely due to the effect of pressure, because in many cases of hydro-

cephalus it is entirely absent. Von Graefe (*Arch. f. Ophth.*, vii) divided such cases into two classes—viz., ascending neuritis and descending neuritis, a distinction which is perhaps more artificial than real. Others believe it to be, and probably with greater truth, due to extension of inflammation down the substance of the nerve. Edmunds and Lawford²¹ believe that it cannot exist in intra-cranial disease apart from meningitis. Allbutt does not find that tumours, which are a frequent source of papillitis, are apt to give rise to any irritation or inflammation of the meninges. Again, tumour of the brain may be present without causing papillitis. This is more likely to occur if the tumour be of small size and situated at a considerable distance from the optic nerves. Still, such tumours occasionally are accompanied by it. The distension of the veins, at one time thought to be a proof of pressure origin, in many cases only takes place in the stage of cicatrization, and is sometimes almost altogether absent in the early stages of the disease. As we have already noticed, early distension is more apt to occur in acute conditions, such as meningitis, than in a slow growing tumour. This is probably to be accounted for by the former giving less time for the establishment of the collateral circulation through the orbital vein than the latter.

Amongst the causes of papillitis, we would notice tumours of the brain, abscess, hydatids, meningitis, various toxic causes, such as lead-poisoning, inflammatory affections of the brain and its membranes, &c. It is, as a rule, double, but occasionally it is a unilateral lesion. Pressure in the third ventricle, from whatever cause, is often the origin of papillitis. It has also been noticed in certain forms of albuminuria.

Ordinary neuritis may be due to any of the foregoing causes. It is also associated with chronic spinal disease, such as sclerosis, but in these cases a primary atrophy is the more frequent occurrence. Not infrequently neuritis is found in syphilis; it may be a primary affection of the nerve, or secondary to some intra-cranial mischief. There is one special form of neuritis which we may mention here—viz., retro-bulbar neuritis—the best example of which occurs in tobacco amblyopia. The nerve is, as a rule, in the early stages of the disease, more or less red, the physiological cup is generally filled in, and the edges of the disc may or may not be somewhat blurred. The visual acuteness is at first not greatly interfered with, but the colour sense is, generally speaking, involved. This is specially true of the colour sense of the macula, a condition to which we shall again refer.

(To be continued.)

CURRENT TOPICS.

GLASGOW AND WEST OF SCOTLAND MEDICAL ASSOCIATION ("THE GLASGOW MEDICAL JOURNAL").—The annual meeting of the subscribers to the *Journal* was held within the Faculty Hall, on Friday, 29th January, 1892, at half-past five o'clock—the President of the Association, Dr. Alexander Napier, of Crosshill, in the chair. The Treasurer's report, which was adopted on the motion of the Chairman, seconded by Dr. Wilson, of Springburn, showed a very good balance in favour of the Association. An important discussion, arising out of the Editors' report, took place on the question of the advisability of reducing the price of the *Journal* with the view thereby of increasing the membership of the Association. All the members present expressed their views on the matter, and the general feeling was that it was undesirable in the meantime to reduce the price. Professor W. T. Gairdner did not think that the price could be safely reduced, and he was of opinion that the *gratis* reprints which the Association granted to authors of original articles should certainly be continued. The other members agreed in the main with the remarks that had been made by Professor Gairdner. On the motion of the Chairman, seconded by Dr. Charles Workman, it was remitted to the General Business Committee to consider the price of the *Journal*, and to report to the next annual meeting. In accordance with a suggestion contained in the Editors' report it was resolved to appoint Dr. John H. Carslaw Sub-Editor of the *Journal*. The following office-bearers for 1892 were unanimously elected; the meeting then separated:—

<i>President</i> ,	DR. ALEXANDER NAPIER, Crosshill.
<i>Vice-Presidents</i> , . . .	{ DR. J. CRAWFORD RENTON. DR. DONALD MACPHAIL.
<i>Editors</i> ,	{ DR. JOSEPH COATS. DR. JOHN LINDSAY STEVEN.
<i>Treasurer</i> ,	{ DR. G. T. BEATSON, 2 Royal Crescent, W.
<i>Sub-Editor</i> ,	{ DR. JOHN H. CARSLAW, 400 Great Western Road.
<i>Secretary</i> ,	{ DR. JOHN LINDSAY STEVEN, 34 Berkeley Terrace, West.

GENERAL BUSINESS COMMITTEE.

DR. WHITELAW, Kirkintilloch.	DR. CHARLES WORKMAN.
DR. J. K. KELLY, Crosshill.	DR. A. K. CHALMERS.
MR. HENRY RUTHERFURD.	DR. J. A. WILSON, Springburn.
DR. FRANK SHEARER.	DR. ALEX. MILLER, Crosshill.

BRITISH MEDICAL ASSOCIATION — GLASGOW AND WEST OF SCOTLAND BRANCH.—The winter meeting of the above branch was held in the Faculty Hall on Friday, 12th February. In the absence of Dr. Haldane, the retiring President, Dr. Napier, the President-elect, took the chair. The Treasurer's annual statement showed a substantial balance in favour of the branch; and the report by the Council revealed a slight decrease in the membership. During the past year a Therapeutic Committee has been formed, the members of which are Drs. Gairdner, Charteris, M'Call Anderson, Napier, Dougall, Hawthorne, Allan, M'Lennan, Macleod (Kilmarnock), and Fraser (Paisley). This Committee has powers to add to its numbers, and Dr. Hawthorne, the Hon. Secretary, will be glad to hear from any member of the branch who is willing to help in its work.

The following are the office-bearers for the year:—

<i>President,</i>	. . . . .	DR. NAPIER.
<i>President-Elect,</i>	. . . . .	DR. WHITELAW.
<i>Vice-Presidents,</i>	. . . . .	{ DR. H. C. CAMERON. DR. HALDANE.
<i>Representative to Council of Association,</i>	.	DR. GOFF.
<i>Hon. Secretaries,</i>	. . . . .	{ DR. FERGUS. DR. PARRY.

Mr. Maylard and Dr. Napier showed a case in which the appendix vermiformis had been removed for appendicitis. Dr. Robertson showed a patient who had been nearly restored to mental and bodily health from paralysis of the insane. Dr. Macleod of Kilmarnock showed a case in which the radius was removed thirty years ago, and a case in which an intussusception had been successfully reduced by passing an œsophageal tube per rectum. Dr. Hector Cameron showed a patient on whom he had operated for extroversion of the bladder.

The usual dinner was held in the evening.

MEDICO-CHIRURGICAL SOCIETY—PATHOLOGICAL SECTION.—A meeting of this section will be held on Friday, the 11th March, at 8:30 P.M., when the following communications will be made:—Dr. John Macintyre will give a demonstration on the bacteriology of the larynx—microscopic, and with the aid of the magic lantern; Dr. T. K. Dalziel will show a case illustrating tubercular infection of an organising blood clot; Dr. Nicoll and Dr. M'Call will show a specimen of stricture of the urethra from a horse. Dr. Lindsay Steven, Dr. T. K. Monro, and others, are expected to show a number of card specimens.

THE PATHOLOGICAL AND CLINICAL SOCIETY.—The Society will meet in the Faculty Hall, 242 St. Vincent Street, on Monday, the 14th inst., at eight o'clock. The following cases and specimens will be shown:—By Dr. Mackintosh—a patient with thrombosis of the inferior vena cava, sequel to an attack of typhoid fever; By Dr. Barr—(1) a specimen of cartilaginous tumour removed from the external auditory canal, which caused retention of pus in the middle-ear; (2) a patient from whom a foreign body was removed from the tympanic cavity by dissection of the auricle forward; by Dr. Nicoll—a child with congenital syphilitic disease of the testicle.

ST. MUNGO'S COLLEGE MEDICAL SOCIETY.—The Annual Dinner of the Society was held in the Alexandra Hotel, Bath Street, on the evening of Thursday, 11th February last. Mr. D. N. Knox, Professor of Surgery in St. Mungo's College, occupied the chair, and proposed the toast of the evening, "The St. Mungo's College Medical Society." About fifty gentlemen sat down to dinner, and a most enjoyable evening was spent.

THE FACULTY OF PHYSICIANS AND SURGEONS AND THE ERASURE OF NAMES FROM THE MEDICAL REGISTER BY DIRECTION OF THE GENERAL MEDICAL COUNCIL.—At its last meeting the Faculty altered chap. v, 2, of its regulations. This rule reads as follows:—"Any Fellow or Licentiate of Faculty whose name may be erased from the Medical Register by direction of the General Council of Medical Education and Registration of the United Kingdom, shall *ipso facto* cease to be a Fellow or Licentiate of Faculty, and his name shall thereupon be struck off the Register of Fellows or Licentiates." In the new rule the words *ipso facto* have been omitted, and there has been substituted the words, "should the Faculty so determine." It should be noted that, according to the Faculty's Representative to the General Medical Council, that body has never yet removed a name for a given term of years, so that hitherto, in replacing a name, it has simply exercised a prerogative of mercy. It is also to be noted that this rule can, in our opinion, only apply to names that have been erased on account of crime or infamous professional conduct (Medical Act, 1858, chap. xxix), and not to names that are erased through inadvertence; e.g., neglecting to notify changes in address, for which special provisions are made (Medical Act, 1858, chap. xiv). The reason, as we understand, for the alteration of the rule is

that the replacement of names on the Medical Register, in cases where the General Medical Council, after a certain time has elapsed, determine to allow of this being done, should be facilitated. In such a case, if the name has been struck off the register of Fellows or Licentiates of the Faculty (as it necessarily was by the old rule—rightly, as we believe), then the offending Fellow or Licentiate could only regain admission to the register by undergoing his examinations again. We do not see that there would be any great hardship in this, and we certainly think the old rule was much more likely than the amended one to maintain the dignity of Maister Peter Lowe's Ancient and Honourable Foundation.

ANDERSON'S COLLEGE MEDICAL SCHOOL.—We have been distressed to learn that a conflict is at present going on between the Dean of the School and the medical students on a matter of alleged breach of school discipline. We have not been informed of the details of the squabble, but we understand that the students have taken the matter very much to heart, and have engaged a well known legal gentleman in town to watch their interests. We sincerely trust that the matter will soon be amicably settled to the satisfaction of all concerned.

THE REGISTRATION OF NURSES.—At a meeting of the Royal British Nurses' Association, held in London on the 8th ult., at which the Princess Christian was present, it was resolved to approach the Privy Council in order to obtain a grant to the Association of a Royal charter of incorporation. The Princess agreed to make the application to the Queen in Council in her own name. Our readers may remember that the application of the Association to the Board of Trade for registration without the word "limited" was refused—hence the present action. We have already strongly expressed our opinion that it is not desirable for nurses to be registered in the manner aimed at by the Association, and we have no doubt that the reasons which caused the President of the Board of Trade to refuse the licence will lead to a similar result on the part of the Privy Council. We know that the Board of Trade has been known to alter its first decision upon a reconsideration of the case, but the opposition to the British Nurses' Association's registration scheme seems to have been so powerful and general that it has not been possible to approach this department of the Government again.

The object of the Association, says a leader in the *Daily Telegraph*, "is the elevation of the nursing profession by some recognised method of registering the fit and eliminating the unfit." We hold that registration will never effect this. If "eliminating the unfit" means the maintenance of a dead level of uniformity at the lowest level possible, then perhaps registration may effect something, but how this can be regarded as in the slightest degree tending towards the "elevation of the nursing profession" we entirely fail to see. We do not think the reference in the same article to the registration of "the plumber who mends our drains" is particularly happy in the present connection. We could understand it if the highest ideal of sick-nursing were to regard it as a mere trade. But nursing is not, and can never be, a trade; and the moment nurses begin to form a trades' union a great measure of their usefulness and influence is lost. The institution of a register would be no guarantee that only fit women would obtain the necessary certificate. We have not at present any basis of union on which a system of registration could be built up, even if registration were desirable, which it is not. It is the individual woman and not the register-ticket that is the important thing for physicians and surgeons and the public to consider. Besides all this, the granting of such a charter would place the absolute control of nursing in these islands in the hands of a self-constituted private company—a control to which it has really no claim whatever.

AMERICAN SANITARY REGULATIONS REGARDING TUBERCULOSIS.—In connection with the discussion recently held in the Glasgow Medico-Chirurgical Society, and the memorial of that body to the Town Council, the following regulations which were discussed by a Committee of the National Conference of the State Boards of Health held at Washington on 2nd May, 1891, may be of interest to our readers:—

"1. That it is the opinion of this Conference that tuberculosis is a zymotic disease; that its germs are developed within the blood and tissues of man and various animals, and that these germs are capable of an existence external to the body for a number of months, especially in dried sputum, and in places where least exposed to the free action of the atmosphere and sunlight.

"2. That the germs of tuberculosis are conveyed in various ways to persons and animals, the principal media of these being—(a) Dust containing dried sputum; (b) food, either

contaminated with infected particles or the flesh of tuberculous animals; (c) milk from phthisical mothers and tuberculous cows.

"3. That insanitary conditions are the prime factors tending to the development and dissemination of the disease, such as—(a) House and soil dampness; (b) lack of sunlight and bad ventilation; (c) bad plumbing and house drainage; (d) overcrowding in living rooms, in schools, in workshops, public institutions, &c.

"4. That the disease is undoubtedly disseminated through the neglect to destroy or disinfect the sputa of the phthisical, distributed as this infectious matter is—(a) On infected linen (dangerous to washerwomen), clothing, carpets, &c.; (b) on the floors and walls of houses, workshops, hospitals, and hotels, especially of health resorts.

"5. That to limit the spread of tuberculosis it is necessary that notification by physicians and householders of its existence be made compulsory, thereby enabling health authorities to examine into the sanitary surroundings of those affected, and to make provision for the adoption of the necessary precautions against infection to the healthy.

"6. That municipal inspection of dressed meat and of dairy cattle be systematically carried out, and that the notification of the health authorities by owners of infected animals be made compulsory.

"7. That Municipal and State Governments ought to aid in the work of limiting the disease by the establishment of institutions especially designed for the reception and treatment of the phthisical, and so situated that while minimising the danger to the general community, they may likewise supply means for outdoor work and exercise, suited to the condition of different patients."

NEW DRUGS, INSTRUMENTS, &c.—We have pleasure in recommending to the favourable notice of our readers *Timbury's Pure Volatile Eucalyptus Oil* as an exceedingly reliable and useful preparation. During the past winter, owing to the prevalence of influenza and respiratory troubles generally, there has been a great run upon eucalyptus oils—ladies have used them for scenting their handkerchiefs, and city men have saturated the blotting pads in their offices. The oil placed on the market by Timbury's Eucalyptus Oil Co. is a clear colourless liquid, with a most pleasant fragrant odour. We have personally made use of it in practice, and been much pleased with the results. As a liniment for the chest it is

very valuable. The oil is obtained from the leaves of the *Eucalyptus maculata*, var. *Citriodora* (Citron-scented Eucalyptus), a tree indigenous to Queensland.

The *Liquor Carnis Company, Limited*, have submitted to us a specimen of a new extract of beef preparation which they have just introduced, and which they designate Jelly Carnis (Caffyn). The other preparations (Liquor Carnis and Malto Carnis) of this Company are well known to the profession, and the present preparation is an attempt to produce a jelly containing all the active ingredients of the liquor carnis, which is present in the jelly in the proportion of 66 per cent. The preparation is a thin brown jelly, with a pleasant taste, and is usually eaten cold, although it may be taken hot in the form of a clear beef tea by simply adding hot water and seasoning.

Obituary.

JOHN WHITE, M.B., C.M.

WE have received the following notice of the death of Dr. John White from the Editorial Secretary of the Southern Medical Society:—

“It is with unfeigned regret that your Committee have to record the death of Dr. John White, Orcadia, Pollokshields, who succumbed to acute pneumonia on Sunday, 29th November, 1891, at 2.10 A.M., in his thirtieth year. This is the first instance in the history of our Society where a member, who was also the son of a member, has been taken away. Dr. White's father was one of our earliest and most zealous members, being connected with the Society, in which he filled with dignity and conspicuous ability every office except that of Treasurer, for a long period of years.

“Dr. White gave, by his attendances and contributions of notes and cases, every promise of following worthily in his father's footsteps. Joining our ranks during the session of 1888, he took from a very early period an active part in furthering the objects of the Society and in increasing its membership. His zeal and activity were soon recognised, and he was made a member of Council, and in this capacity,

and in the various Committees to which he gave ungrudging help, his services were invaluable. At the annual meeting in October he was unanimously elected Seal-Keeper, and one of his last appearances in public was at a Committee meeting of the Society.

"Of no one could it be said more truthfully than of Dr. White, that whatever his hand found to do, he did it with all his might. There was a prompt decisiveness and energy about him which promised well for his success in the battle of life, and it had invariably ensured success in whatever he undertook. His character and temperament were quite frank and genial; he was outspoken to a fault, but gentle and kindly at heart, and full of an exuberant buoyancy and vivacity which endeared him to all his friends and rendered him a most agreeable companion and colleague. He was liked by every one, a welcome guest in every company, and we shall long miss his presence from our midst, and lament his loss.

"The history of his last illness is a very brief one. He had been feeling out of sorts on several occasions during the autumn and early winter, and kept indoors for some time in October, and seemed to have completely recovered, but, shortly after resuming professional work, he caught a chill, and was again laid up. Symptoms of catarrhal pneumonia, the disease of which his father died, soon supervened, and in spite of the most constant and tender nursing, and the professional services of his friends, Drs. Montgomery, Walls White, and Gilmour, with Professor M'Call Anderson in consultation, he grew steadily worse, and died in the morning of the ninth day without a struggle.

"Cut off thus early, in the dawn of a career which seemed likely to be one of constantly increasing usefulness, happiness, and honour, he has left a blank at home which never can be filled. We beg to record our deep and earnest sympathy with his young widow in her great bereavement, and with his two little ones, left fatherless, and our sincere condolences with his mother, who has now to mourn a son as well as a husband, departed this life within a few years of each other, and laid in that quiet grave from which their skill and care have often succeeded in rescuing other sufferers."

REVIEWS.

Influenza, or Epidemic Catarrhal Fever: an Historical Survey of Past Epidemics in Great Britain from 1570 to 1890: being a New and Revised Edition of "Annals of Influenza," by Theophilus Thompson, M.D. By G. SYMES THOMPSON, M.D. London: Percival & Co. 1890.

Epidemic Influenza: Notes on its Origin and Method of Spread. By RICHARD SISLEY, M.D. London: Longmans, Green & Co. 1891.

Influenza and the Laws of England Concerning Infectious Diseases. By RICHARD SISLEY, M.D. London: Longmans, Green & Co. 1892.

DURING the past winter influenza has again been prevalent in an epidemic form in many parts of the country, and it would seem that in some places the present epidemic has been even more severe and fatal in its results than the former. The disease has also again invaded, with disastrous results, the continent of Europe; and on the 11th January, 1892, the influenza bacillus, which had long been looked for and anticipated, was demonstrated by Drs. Pfeiffer and Canon. For an account of this demonstration readers are referred to our issue for February, 1892, page 155. Time and increased experience of the new organism will serve to prove whether this is the true cause of the disease. It is the fashion now to insist upon microbes, just as it used to be the universal custom to ascribe everything to a "deposit." While we have no wish whatever to prejudge the question or to deny that influenza is due to a bacillus, it is perhaps just as well to sound a note of warning against the tendency to form too hasty conclusions. The rapidity with which influenza spreads, the evident shortness of the period of incubation, and the very short time that the disease takes to run its course are not strikingly analogous to the phenomena observed in ordinary specific fevers. No stronger upholder of the contagious nature of influenza could be found than Dr. Sisley, and it must be admitted that he marshals his facts and states his arguments in a very able manner. All the same, we are not sure that at times he is altogether free from the charge of special pleading, and we are quite sure that great opposition

would be aroused were any attempt made at present to render notification of influenza compulsory. In his pamphlet of the present year he shows that in 1890 the number of deaths directly attributed to influenza in England and Wales was 4,523; he then goes on to show that if the increased mortality from pneumonia, bronchitis, &c., be taken into account, the total number of deaths due to epidemic influenza was 27,074, or 91 per 1,000,000 living. These figures are the Registrar-General's, but we hold that deductions based upon figures which may or may not have had anything to do with influenza are scarcely permissible in logical statements. It is perfectly well known that the specific fevers often start conditions of chronic ill-health which ultimately terminate in death, yet we would never think of adding these figures to those showing the death-rate of the disease itself. We do not regard the death from broncho-pneumonia, which occurs months after an attack of measles, as a death from measles, nor do we speak of a death from chronic tubular nephritis, originating in scarlatina, as a death from scarlet fever. The fact that deaths from acute and chronic respiratory affections are greatly increased in number during a time when influenza is epidemic, proves nothing more, it seems to us, than that the same surrounding circumstances which favour the incidence of influenza in an epidemic form also favour the occurrence of such respiratory diseases. It would be necessary to show that every one of these extra deaths from respiratory diseases had been directly, and immediately, and solely caused by the influenza before one would be justified in arriving at the conclusion which Dr. Sisley evidently desires from this statement of the Registrar-General. We are of opinion that much harm has been done by the alarmist reports of the fatal nature of influenza that have everywhere appeared. Such reports have led to an unreasoning fear in many families and communities; and the result undoubtedly is that many diseases and many deaths have been attributed to influenza, when influenza had positively nothing to do with them. Although we cannot agree with Dr. Sisley in many of his views, we have no hesitation in cordially recommending his book and the opinions it contains, to the careful consideration of our readers.

The excellent historical treatise on influenza by the late Dr. Theophilus Thompson, now so ably edited and brought down to date by his son, is so well known and so universally recognised as one of the classics of medicine, that it needs no further notice here.

The Anatomical and Histological Dissection of the Human Ear in the Normal and Diseased Condition. By DR. ADAM POLITZER. Translated from the German by GEORGE STONE. London: Baillière, Tindall & Cox. 1892.

THIS latest work of Professor Politzer adds one more to his unrivalled services to otology. It must be confessed that the mantle of Toynbee, the founder of the pathological anatomy of the ear, has not fallen upon any of his countrymen. The superstructure of the building, which was founded with such matchless labour by Toynbee, has been carried on mainly by diligent workers in other countries, and by none with such industry and ability as the author of this volume. Anyone who has seen the anatomical and pathological collection of Politzer in Vienna, must have been impressed with his peculiar fitness for preparing a work such as the one before us.

The first part of the volume is devoted to the anatomical and pathologico-anatomical dissection of the organ of hearing, and the second part to its histological examination.

Minute details are given as to the various modes of removing the organ of hearing from the dead body. In connection with these, there is a very useful description of the best methods of examining the cranial cavity, the brain, the meninges, and the sinuses of the dura mater, in those cases in which ear disease, especially middle-ear disease, terminates fatally. Numerous sections of the dry temporal bone, both in infants and adults, are described. The sections of the temporal bones in infants and young children are particularly instructive. The striking changes of form and structure which this bone undergoes after birth are of great importance, not only as bearing upon development, but also upon certain pathological conditions in the ear peculiar to childhood.

The larger part of the work is devoted to the preparation of the various parts of the organ of hearing, either for anatomical study or for pathological purposes. Every structure and region of the ear are included in this examination. A very useful series of sections is described, specially adapted for purposes of instruction. As befits its great importance pathologically, the middle-ear is exhaustively treated. The best methods of preserving and showing to advantage the various structures of the tympanic cavity, in cases where purulent and simple catarrhal diseases had existed, are clearly described; for example, the gravity of purulent

disease in the upper tympanic cavity, with perforation of the membrana flaccida, is demonstrated by careful dissections. Likewise the best methods of showing the changes produced on the inner wall of the tympanum, and especially in the fenestral regions, by catarrhal and inflammatory processes are well depicted. In the difficult dissection of the muscles of the Eustachian tube, the functions of these muscles are demonstrated by the arrangement of their fibres. The tensor palati (abductor tubæ) is shown to pull upon the hook-cartilage and the membranous part of the tube, so as to open the tube; the levator palati is demonstrated to push up the floor of the tube by its contraction, and thus also to bring about the dilatation of the tube. There is a very instructive section on the preparations of the organ of hearing by the process of corrosion, which has also a short historical reference. The corrosion process with wax and resin, and also metallic corrosion, are so minutely described that corrosive casts of the cavities of the middle-ear or of the labyrinth may be prepared by anyone following the directions. A highly useful chapter on mounting and preserving anatomical and pathological preparations of the ear follows that on the corrosive process. The second part of the work is devoted to the histological examination of the ear. The preparatory methods and general processes, such as fixing and hardening, decalcification, embedding and sectioning, staining and mounting, are all described in detail. This preliminary part of oto-histology is followed by an exhaustive histological examination of all the structures and parts of the ear, beginning with the auricle, and ending with the central course of the auditory nerve in the brain. The volume concludes with a *résumé* of the literature of the subject. The illustrations are numerous and most instructive. They are in many cases taken from specimens belonging to Professor Politzer's own collection.

To the otologist, this work must be simply invaluable. Frequent dissections of the ear by the aural surgeon render him familiar with the relations of the various parts to one another, and to the neighbouring organs, and are thus fitted, more than anything else, to make him a good and safe operator. For such work this volume will prove a most valuable and much needed guide.

In the translation, Mr. Stone has done yeoman service to aural surgery, a service which could have been performed only by an accomplished German scholar. He has executed a difficult task well, and has thus earned the gratitude of all

English speaking otologists. The translation is an honest and substantial piece of work, calculated to help materially in the advance of scientific otology.

Handbook of Diseases of the Ear, for the Use of Students and Practitioners. By URBAN PRITCHARD M.D. Second Edition, with Illustrations. London: H. K. Lewis. 1891.

THAT a second edition of this small work on diseases of the ear has been called for shows that it has merits which commend themselves to the general practitioner. This is by no means an exhaustive treatise, but rather a short practical description of diseases of the ear, very much based on the author's own observation and experience. The work has, therefore, more individuality about it than is to be found in a complete manual; on the other hand, the amount of information given is scarcely sufficient for anyone wishing a work of reference on diseases of the ear.

A chapter on the anatomy and physiology of the ear, which, in so small a work, might have been judiciously omitted, is followed by a description of the methods of examining the various parts of the ear. We cannot confirm the author's preference for electric light in the form of Trouvé's photophore, which, fixed on the forehead, is a heavy, unwieldy appliance; besides, it does not afford that concentration of light required in so small a cavity as the ear. The ordinary concave mirror and gas-light from an Argand burner, which we are astonished to find are not approved of by the author, are in our opinion much to be preferred. The description of catheterisation of the Eustachian tube is rather meagre, and the method of moving the point of the catheter from the posterior wall of the naso-pharynx to the pharyngeal mouth of the Eustachian tube is unreliable—namely, that of simply withdrawing the point of the beak half an inch, and then turning the point outwards. No mention is made of the other methods approved of and practised by most aural surgeons, Continental as well as British. The chapter on exostosis is very useful as giving the results of large experience in the mode of treatment with the dental drill or burr.

There is a good practical chapter on diseases of the throat and nose as they are found associated with middle-ear disease. The author still limits himself to the use of the finger-nail in the removal of adenoid growths from the naso-pharynx. A finger-nail capable of severing the tough tissue often met

with in such cases must be of extraordinary proportions, strength, and hardness. When the nail alone is used, we suspect that the results are imperfect, and that the partial good attained by such a mode of operating is due more to the depletion which follows it than to the removal of the growths. The employment of rectified spirit in polypoid and hypertrophic conditions of the nasal mucous membrane, as suggested by Cresswell Baber, has been found useful by the author. An excellent though short description is given of the treatment of chronic purulent disease of the middle-ear. The remedies are those generally agreed upon by aural specialists, and are such as can be employed safely and successfully by the family practitioner. That persistent form of the disease which is attended by perforation of the *membrana flaccida* receives special attention. The operative treatment carried out by Sexton of New York, for this class of cases—namely, the removal of the malleus and incus—is simply mentioned, but not in terms of approval. While the position of this operation has probably not yet been clearly established, it is, we think, a reasonable effort to cure a condition of things which, by ordinary means, is often found to be incurable. Fly blisters, applied behind the ear, are frequently recommended by the author for this and other diseases of the ear. There is a general feeling among aural surgeons unfavourable to this mode of treatment, and we are rather surprised to find it so frequently advised, even in acute diseases, in the course of the book. In regard to the pellet of cotton as a means of improving the hearing, in cases of perforation of the tympanic membrane, we think the author is in error in saying that this remedy suits best in those cases in which the perforation involves the lower portion of the membrane. It is generally admitted that the best effects are obtained when the loss of membrane is in the postero-superior part—the region of the stapes. The section on disease of the perceptive apparatus of the ear is useful, and contains good practical points of treatment.

The illustrations are not a notable feature of the book; only some three or four depict pathological appearances; the rest represent anatomical specimens and instruments. As the work of a specialist of large and mature experience, and withal of a clear and sagacious mind, this book is decidedly of value, and is a safe guide to the family practitioner in the treatment of the ordinary affections of the ear.

Transactions of the Second Session of the Intercolonial Medical Congress of Australia, held in Melbourne, Victoria, January, 1889. Melbourne: Stillwell & Co.

THE transactions make up a formidable volume of over a thousand pages, and represent the work of eleven sections. A survey of the papers and discussions leaves upon the mind a distinctly favourable impression. It shows that the profession in Australasia is fully alive to the work being done in Europe and America, and is endeavouring honestly to contribute what it can of experience and research towards the elucidation of the problems of medical science. It is enabled, from peculiar climatic and social conditions, to study disease apart from many of the causes which excite and maintain it in this country, and to investigate certain diseases which may be rarely encountered in Europe.

The profession at home may therefore be presumed to have most interest in such papers as deal with the climatic treatment and prevalence of phthisis pulmonalis in the Antipodes, with typhoid fever, with hydatid disease, with beri-beri, and with sanitary questions.

The statements in regard to *phthisis* are likely to cause some surprise. We are assured by the president that the disease is as common as in England, and decidedly more common than in Canada and Scotland. In reference to the question of the relationship between bovine and human tuberculosis, it is pointed out that the country districts of New South Wales, where the phthisis rate is low, are for the most part devoted to the rearing of sheep; while Queensland, where the rate is high, is, at all events in the coast divisions, almost exclusively devoted to the raising of cattle.

Typhoid is admitted to be the true *opprobrium medicorum* with the Australasians. It defies says the president, legislation and administration, it laughs at boards of health, and triumphs ruthlessly, and always. He further states that both in urban and rural districts it is nearly of twice as frequent occurrence as in English towns. The disease was discussed in all its bearings at a general meeting of the Congress, and was almost uniformly traced or ascribed by the speakers to imperfect drainage.

A special meeting was also held concerning *Hydatid Disease*. After a paper dealing very exhaustively with the prevalence of the disease in different parts of the world, the contributions mostly bear upon treatment. The discussion

limits itself practically to the methods of puncture and free incision, and it is evident that the latter is growing in favour.

Without wishing it to appear as an invidious selection, the following subjects are mentioned (in addition to the above) as having obviously a special interest for the profession at home :—*Filaria*, beri-beri, typhlitis, cerebro-spinal fever, tropical abscess of the liver, leprosy, hygiene, diphtheria, cretinism, gastro-enteritis (children).

Clinical Manual for the Study of Medical Cases. Edited by JAMES FINLAYSON, M.D. Third Edition. London: Smith, Elder & Co. 1891.

IN the preface we learn that the plan of this well-known Manual remains unaltered. The first and last chapters have been simply reprinted, with some additions to the bibliography and tabular matter; all the other chapters have been carefully revised. The price of the volume has been reduced so as to render it more available for study and for reference. The position of Finlayson's manual as a reliable work on the subject with which it deals has long been established, and we wish the present edition the same success as that enjoyed by its predecessors.

The Pathological Histology of Bronchial Affections, Pneumonia, and Fibroid Pneumonia: an Original Investigation. By A. G. AULD, M.D. With Illustrations. London: J. & A. Churchill. 1891.

DR. AULD'S book contains the account of a careful and exhaustive original research which he has carried out in the pathological department of the Western Infirmary. Much of the volume, especially the chapters on bronchial affections, must already be familiar to our readers, as these sections have been published from time to time in the pages of this *Journal*, and some of the other portions have appeared in the *Lancet*, whilst the chapters on normal histology are now published for the first time. Although some of the views advanced by Dr. Auld are not likely to meet with universal acceptance, we have no hesitation in recommending the volume as containing the record of a careful and accurate piece of histological work, and as advancing a number of criticisms on recent literature and opinion.

The Pathology of Mediastinal Tumours, with Special Reference to Diagnosis. By JOHN LINDSAY STEVEN, M.D.
London: H. K. Lewis. 1892.

THE contents of Dr. Lindsay Steven's volume are familiar to our readers, having appeared in the form of a series of articles in recent issues of this *Journal*. The work is based upon the investigation of a series of cases, which are all recorded in full, in such a manner as to indicate as clearly as possible the importance of pathological anatomy in its bearings upon the diagnosis of mediastinal tumours. The cases recorded were used as the text for a short course of post-graduate lectures on the pathology and diagnosis of mediastinal tumours, which were delivered in the Glasgow Royal Infirmary in October 1890, and out of which the present volume originated.

The Annual of the Universal Medical Sciences. Edited by CHARLES E. SAJOUS, M.D., and Seventy Associate Editors. Five Volumes. Philadelphia and London: F. A. Davies. 1891.

WE have once more to call the attention of our readers to the publication of this enormous annual for 1891. The present issue is the fourth series, and its appearance was somewhat delayed on account of the prevalence of epidemic influenza and sickness amongst the editorial staff. The general plan and scope of the work remain much as in former issues; but the volumes for this year are greatly improved by the addition of a reference list to the end of each volume.

Ambulance Handbook on the Principles of First Aid to the Injured. By GEORGE THOMAS BEATSON, B.A. (Cantab), M.D. (Edin.) Glasgow: St. Andrew's Ambulance Association. 1891.

THIS volume has been published at the request of the St. Andrew's Ambulance Association, for whose classes it is primarily intended as a text-book. The Association syllabus has been adopted as a guide to the arrangement of the subject matter, and that is presented in a most thorough manner, and, so far as possible, in terms perfectly intelligible to the non-professional reader. No pains have been spared to make

it clear that it is only *first aid* treatment that is being taught; "send for medical assistance" occurs with great frequency. The chapter on fractures is specially interesting and particularly well illustrated; its hints as to the extemporising of splints are exceedingly practical, and with such instruction one does not wonder at the excellent temporary fixing of broken limbs in cases brought to hospital by the ambulance officials. A similar remark might be made as to the section on the treatment of external hæmorrhage, but the inhalation of vinegar and turpentine *in steam* for hæmoptysis (as recommended on p. 190) seems rather risky.

Throughout, the plan is followed, not of insisting upon the committal to memory of certain lists of rules, but of explaining the essential points thoroughly, so as to be remembered because understood. Reference to the injuries and affections of any system of the body is always preceded by some account of the anatomy and physiology of that system. This is necessary and wise; but in some parts we think that a shorter and less detailed introduction of this nature would have sufficed; thus, we fail to see that sixteen pages need have been devoted to the description of the structure and functions of the nervous system. Our fear would be that this overfulness in certain sections might lead sometimes to confusion; but with the above qualifications we have no hesitation in considering Dr. Beatson's book as well fitted to attain the object with which it has been compiled. We can recommend it also as likely to be of assistance to other ambulance lecturers, and as a reliable guide to persons generally, as to their action in cases of accident and sudden illness.

Catechism Series—Anatomy. Part V: The Thorax. Part VI: Bone and Joints. Edinburgh: E. & S. Livingstone.

WE do not look with any great favour upon books whose sole purpose is to facilitate "grinding," but we suppose that as long as examinations exist there will be a demand for such productions. The writers of the two booklets now before us clearly do not intend that a student should obtain therein his knowledge "first hand," but that they should be used for revising the knowledge obtained from the ordinary text-books, and especially for enabling students to examine each other. For the latter purpose the system of question and answer is well adapted; and we can with confidence state that if the student can answer the majority of the questions accurately,

he will possess no mean knowledge of "book-anatomy." In the section of the thorax we fail to find any description of the tricuspid valve or of the superficial cardiac plexus; but, on the other hand, especial prominence is given to such out-of-the-way things as the *moderator band* and *vestigial fold of Marshall*. On the whole, however, we must commend the general accuracy and clearness of the descriptions.

Motherhood: a Book for every Woman. By DR. ALICE KER (MRS. STEWART KER). Manchester and London: John Heywood. 1891.

THE title of this work declares it to be "a book for every woman," and it deserves to have a wide circulation. Medical men would do well to recommend its perusal to the mothers and young wives in their practice, who are quite ignorant of the mysterious laws that govern their bodies, and who would be grateful for information and advice. The author's object in writing is stated to be "a raising of the standard of physical and mental health among the women and children of this generation and the next." It is a wide subject, treated in a generous and womanly way.

Mrs. Ker considers the life of woman from birth till "the heavenly side of fifty," and states clearly what should be done and what avoided through all phases of her existence. She pleads for "mothering," and considers that full confidence between mother and daughter should greatly simplify the necessary explanations regarding the bodily functions. "Nothing that is physically wrong can be morally right," writes the author; yet how constantly, through ignorance, do girls and women do incalculable mischief to themselves.

Dr. Ker regrets that, "in spite of all that is taught and written on the subject of health, and in spite of everything that is being done for the education of women, the question of periodicity is left entirely out of sight, and the hardest work of a girl's school life comes on precisely during those years when she ought to be most tranquil." Further—"Girls must not be allowed to think themselves inferior to boys; on the contrary, it is because of the finer and more highly finished nature of the instrument that it must be treated with extra care." "Girls are capable of doing quite as much mental work as boys, and of doing it equally well, and there is no reason why they should not follow the same course of study, and pass the same final examinations, provided that in certain

cases the application be varied to suit the days when they feel less vigorous."

Dr. Ker declares for rational dress, having due regard to the quantity required.

The chapter on Matrimony contains many useful hints and advices, and might suitably be studied by husbands and fathers. "In the marriage relation, the choice of time and frequency is the right of the woman by reason of the periodicity which characterises her being, and the violation of this law injures not only herself physically and morally, but also her husband and her children. If a wife has not got the control of her own person, in what respect is she better than those most unhappy members of our sisterhood who are pathetically defined as 'unfortunates.' It is of no use to insist on self-control and self-restraint outside the marriage tie if they are not to be practised within the pale of wedlock also; and here they will be of untold benefit to the next generation."

Many wise counsels are given in the different chapters—very needful to the great majority of women. The book is an honest attempt to perform a difficult task; and, though by no means free from a certain exaggerated statement of pet ideas, yet we are able to recommend it to our readers, and to bespeak for it a large circulation.

Transactions of the Edinburgh Obstetrical Society. Vol. XVI.
Session 1890-91. Edinburgh: Oliver & Boyd. 1891.

UNDER the presidency of Dr. Berry Hart, the Edinburgh Obstetrical Society has had an even more than usually active year, and must again be congratulated on its vitality. While this volume of transactions cannot be said to contain any "epoch-making" paper—indeed, we may at once say that there is none which strikes us as reaching a very high level of excellence—it is a valuable record of much serious and interesting work.

The President contributes no less than five papers besides his presidential address. Of these, perhaps the most valuable are "The Anatomy and Mechanism of Early Abortion" and "The Displacement of the Placenta in Extra-uterine Gestation and its relation to those cases ending in Pelvic Abscess."

Dr. Halliday Croom has an interesting paper on "The

Diagnosis of Early Extra-uterine Gestation, with Illustrative Cases." The cases mentioned are four in number, but only two of them are undoubtedly extra-uterine gestations. Another paper by Dr. Croom, "A Criticism of Some of the Lesser Gynæcological Manipulations," is also interesting, but far too slight.

The ablest paper in the volume is one by Dr. Milne Murray on "the Axis-traction Forceps: their Mechanical Principles, Construction and Scope." The author lays down the mechanical principles on which he has constructed an axis-traction forceps of his own, and these principles must be accepted by all who adopt such forceps. We would point out, however, that a forceps applied at the brim seldom if ever grasps the head in the position he indicates.

The other papers by Drs. Ballantyne, Brewis, Haultain, Underhill, &c., will repay perusal.

Diphtheria: its Natural History and Prevention. Being the Milroy Lectures delivered before the Royal College of Physicians, London, 1891. By R. THORNE THORNE, M.B. Lond., F.R.C.P., F.R.S. London: Macmillan & Co. 1891.

EXTRACTS of those lectures have elsewhere been placed before the profession, but as here given in full they will be welcomed by the practitioner who is called upon to deal with the disease, as well as by students of epidemiology. He gives evidence to show that a disease corresponding to diphtheria was described by the ancients, and that in our own country it has appeared at intervals during the past four centuries; that the rate of mortality from diphtheria in England and Wales has been progressively on the increase during the past twenty years, and that this increasing mortality is most marked in large cities and towns; also that the increase in mortality from diphtheria coincides in point of time with sanitary improvements, improvements in water supply, &c.; and that during the same period there has been a markedly diminished death-rate from enteric fever and those diseases grouped under the heading of "zymotic." These facts, and they are here abundantly proved by reliable statistics, are somewhat startling to those who include diphtheria amongst the so-called "filth diseases," and he shows that the connection between diphtheria and faulty drainage is not of that intimate character believed in by many. The influence of season, of cold and wet, of age

and sex, on the development and propagation of diphtheria are each individually and carefully considered, and the mass of evidence produced bearing on these various points is ably and impartially reviewed. The evidence collected relating to the aggregation of children at school during the prevalence of indefinite "sore-throat," and when such culminated in epidemics of true diphtheria should not be lost sight of. Dr. Thorne considers that by this crowding together the potency of diphtheria is enhanced. The part taken by milk in the conveyance of the bacillus of diphtheria is illustrated by the Hendon and other epidemics, and shown to have been demonstrated by the experiments of Klein. Isolation of the sick, regulation of school attendance, "the use of such milk only as has been boiled or otherwise cooked," the importance of sunlight and free movement of air, are points specially dwelt upon in considering the prevention of this dreaded disease.

Refraction of the Eye. By A. STANFORD MORTON. London: H. K. Lewis. 1891.

THAT this little book subserves some useful purpose is obvious from the fact that this is the fourth edition, the first having been published in the year 1881. It is not, and it does not profess to be, a scientific manual on this very important subject, yet from experience we know that it is one much appreciated, and, we believe, in the best sense useful to students and others who, while not wishing to become specialists in this department of surgery, still feel it necessary to have some knowledge of these matters. A few weeks with a competent teacher, combined with a perusal of this manual ought to put anyone in a position to investigate most cases of ametropia, and to form a very definite opinion as to the nature and amount of a patient's error. The little volume is characterised by clear statements of facts, and the explanations given are very elementary, and such as anyone can understand; there is no attempt, and we think rightly so, at mathematical demonstration.

In the next edition it certainly would be a great improvement were the author to include a chapter on the examination of errors of convergence and on their correction by prisms. We believe this to be a matter of the greatest importance to the general practitioner. That, of course, is a matter of opinion, as some do not hold these errors to be of great

moment, but we are inclined to think that Dr. Morton will regard them as being of importance. We can well believe that the author has thought them to be beyond the scope of his work, but we think it to be a disadvantage, that if a practitioner wishes to have a complete account of the physical examination of the eye, he requires to look up several text-books, unless, indeed, he is prepared to attack some more exhaustive treatise on the subject. This is, however, perhaps an objection that can be taken to all smaller manuals.

We have always recommended Morton's book with great confidence to the more junior students, and we shall continue to do so.

Diagrams of the Mouth, Fauces and Larynx, for Clinical Purposes. Published by J. T. Balcomb, Chancery Lane, London.

THESE diagrams are intended to enable the surgeon to "exactly indicate the position of parts affected in diphtheria, granular pharyngitis, laryngitis, tonsillitis, &c." The diagrams are shaded, giving a fairly correct picture of the external appearance of the parts, but simply on account of this elaboration they appear much less suited to indicate diseased areas than diagrams where the form of the parts is given in outline only.

International Clinics: a Quarterly of Clinical Lectures. Edited by KEATING, GRIFFITH, BRUCE, and FINDLAY. Vol. II. Edinburgh & London: Young J. Pentland. 1891.

IT is scarcely to be expected that the high standard of the first volume of this publication would be maintained, and we are scarcely disappointed that it is not. In starting such a work no doubt special efforts would be made to secure the very best material available. We venture to think also that it will scarcely be possible to obtain every quarter some forty first-class lectures—the scheme is too ambitious. No doubt there is much useful material here, but there is a good deal that is very elementary. We notice also that the lectures, with two exceptions, are by American physicians or surgeons, as if the supply in this country were already becoming rather dry.

Of the lectures by British writers that by Dr. J. Bland Sutton on "The Effects of Double Ovariectomy and Oophorectomy in the Secondary Sexual Characters of Women," is interesting and instructive. That by Dr. A. W. Macfarlane on "Habit in Reference to Sleep and Sleeplessness" is also worthy of careful perusal.

In making these remarks we have no intention of discouraging the editors, but we would be better pleased to see fewer lectures and more thorough ones.

The Hospital Annual and Year-Book of Philanthropy, 1891-92. Edited by HENRY C. BURDETT. London: *The Hospital* (Limited).

WE have in this book a mass of information bearing upon the medical schools, hospitals, and allied institutions of the United Kingdom and the Colonies. In each case there is supplied a list of the medical staff, together with the income, expenditure, and terms of admission. There are also very complete tables comparing the expenses of the different hospitals in detail under various headings, and showing the cost per bed and per patient in each. Those interested in hospital finance will therefore easily find the exact information they require. In order that the financial comparison may be more complete and efficient, the editor suggests that all hospital accounts should be kept on an identical plan, and he publishes elaborate specimen lists and account forms, which seem well adapted for their purpose.

The medical practitioner will find very useful, for purposes of reference, the lists which are here supplied of convalescent and nursing homes, institutions for the reception of the blind, deaf, deformed, &c., pension and relief societies, hydropathic establishments, homes for inebriates, lunatic asylums, &c. As matters specially of local interest, we note that there is a repeated complaint of the lack of details in the accounts supplied by our Royal Infirmary, and that, amongst the events of the year, is mentioned the opening of the "Great Victoria Hospital at Glasgow."

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

SURGERY.

By HENRY RUTHERFURD, M.B.

Congenital Fistulæ of the Neck and Tumours of the Branchial Clefts. The cavity of the mouth (Mundbucht), whose formation is completed towards the end of the first month of foetal life, is enclosed at the sides and below by two more or less cylindrical masses, which spring from the lateral cranial plates and meet in the middle line. Besides this pair of masses there are three others which lie behind the first, and gradually diminish in size. These masses are the branchial processes; between them we have the branchial grooves, consisting of depressions of the ectoderm. Corresponding to the grooves in the outer surface are grooves on the inner or pharyngeal surface—that is, on the side of the entoderm; and by solution of the intervening wall arise the branchial clefts. The first branchial process contributes to the formation of the face; the second furnishes the styloid process, the styloid ligament, and the lesser cornu of the hyoid bone; the third forms the body and greater cornu of the hyoid; and the fourth is concerned in the formation of the anterior wall of the neck. Closure takes place in all the branchial clefts except the first, which forms the external auditory canal, the middle-ear, and the Eustachian tube.

There may, however, be failure to close, complete or partial, on the part of the branchial clefts, and resulting formation of complete or incomplete branchial fistulæ. Obliteration of both superficial and deep extremities of such passages, with persistence of the intermediate tract with its epithelial lining, may lead later to the formation of tumours of the branchial passages—cysts, abscesses, epitheliomata. The cells of the tumour will be flat or cylindrical according as the tumour belongs to the more superficial or deeper part of the branchial passage. The tumour will be higher or lower in the neck according as it belongs to the first, second, third, or fourth cleft.

This simple and plausible explanation requires, however, some modification, as has been shown more especially by the enquiries of Rabl, Liessner, Kastschenko, and Schnitzler.

Of the six cases narrated, three presented cysts at the angle of the jaw; one was a cyst in the supra-clavicular fossa, one in the supra-sternal fossa, and one an incomplete fistula, opening at the anterior edge of the sterno-mastoid, about its middle. [With regard to the supra-clavicular case, no convincing reasons are adduced for considering it of branchial origin.—ED.]

Modern teaching on the developmental anatomy of the parts concerned is represented by Hertwig. In the development of birds and mammals the two first branchial processes, the mandibular and the hyoid, continue to grow, while the third and fourth are more and more left behind. The fourth is especially ill developed and ill defined compared with the others, from which disproportion in growth it comes about that the upper processes overlie the lower ones. The second or hyoid process, projecting over the third and fourth, forms the anterior limit of a groove in which these two lie. This is the sinus præcervicalis of His or the sinus cervicalis of Rabl, and this sinus is gradually closed in by the growth of a broad three-sided process from the posterior edge of the second or hyoid arch, which is known as the Kiemendeckel (Rathke) or branchial lid, and finally unites with the lateral body wall on either side. As for the later history of the second branchial grooves, the second one corresponds at first to the posterior edge of the second or hyoid arch; with the later growth of the arch it gradually retires further back, and gets covered in by the Kiemendeckel. The corresponding groove on the pharyngeal surface,

which later is represented by Rosenmüller's fossa, develops at first into a somewhat capacious space. From this widened-out-space a duct-like channel is developed, which is connected at its outer end with the outer groove, where the latter is covered in by the Kiemendeckel. This duct, called by Rabl the branchial duct, furnishes a connection between the second inner groove and the sinus cervicalis. With the further growth of the hyoid arch backwards, it is somewhat altered in its direction, but always from within and in front outwards and backwards, and gives us a suggestion as to the origin and course of cervical fistulæ.

The first branchial cleft, then, having nothing to do with the sinus cervicalis, has nothing to do with cervical fistulæ. What, then, of the third and fourth?

According to Rabl, the third internal groove reaches to the floor of the sinus cervicalis, and comes into contact with its epithelial lining. From the groove on either side there runs a hollow process towards its fellow at the middle line. The part which runs towards the floor of the sinus is distinguished as the lateral limb, the other process as the ventral limb, of the third branchial groove. The epithelium of the dorsal wall furnishes the nucleus of the inter-carotid gland; from the ventral limb is formed the thymus—that is to say, the main part of it, for Rabl supposes that a part of the thymus is formed directly from the sinus cervicalis. His, on the other hand, derives the thymus exclusively from the epithelial lining of the sinus cervicalis. This difference of opinion (Kölliker, Born, Rabl, against Kastchenko and His) is of importance, inasmuch as it is not improbable that the formation of fistulæ and cysts may be connected with the origin of the thymus from parts of the pharyngeal surface.

Now, cysts and fistulæ have been described in the supra-sternal fossa, and others which reach behind the sternum and are in relation to the anterior mediastinum. In the case described by Sachs, and which he considers was obviously of branchial origin, the lining membrane had to the naked eye the appearance of a mucous membrane with numerous papillary outgrowths. On some of the cells Professor Lang has found what he considered the remains of cilia. In the wall there was a great deal of lymphoid tissue.

Details as to the supra-clavicular case are wanting. Sachs admits that it may have been a lymphangioma. If of branchial origin, he thinks it arises from the fourth groove. With Schnitzler he thinks that the conditions for the development of cysts or fistulæ are present in every one of the grooves.

Prognosis is good. Schnitzler mentions malignant developments and growths towards the mediastinum as possibilities. With regard to treatment, it should be remembered that extirpation is likely to be much complicated by any precedent treatment by sections or injections from secondary adhesions.—(Sachs, *The Kocher Festschrift*, 1891.)

Lister on the Principles of Antiseptic Surgery (Contribution to the *Virchow Festschrift*).—This paper is itself a summary, historical and practical; yet, from its importance and its inaccessibility to the majority of our readers, it seems desirable to call attention to the main points enunciated by the distinguished writer.

“The original idea of the antiseptic system of treatment was the exclusion of all microbes from wounds. It had long been obvious that the putrefaction which at that time attended all wounds, except the very small proportion which united by the first intention, was a grievous cause of mischief. . . . Entirely to prevent its occurrence seemed hopeless so long as it was believed, in accordance with the teaching of Gay Lussac and Liebig, that the access of a minute quantity of free oxygen could start progressive fermentative changes in organic substances.” This was no longer the case when Pasteur had shown that putrefaction and other fermentative changes were caused by the growth of micro-organisms, and had at the same time demolished the idea of spontaneous generation.

The first results were obtained when it was shown that by the use of

undiluted carbolic acid compound fractures could be got to follow a course as safe and tranquil as simple ones. From this it was a short step to the use of the acid in dilutions which did not act so injuriously on the tissues.

"Meantime it soon became apparent that putrefaction was by no means the only evil that was avoided by treatment conducted on these lines. . . . This naturally suggested the idea that various diseases to which wounds were liable, though not septic in the original sense of the word, were, like putrefaction, caused by microbes, each disorder having probably its own specific organism—a view the truth of which has been amply demonstrated by the study of bacteriology.

"Thus the attempt to exclude microbes entirely from wounds was followed by results which more than fulfilled the highest hopes entertained of it. Yet the advance of knowledge has shown that to carry out such an idea in its entirety is on the one hand impossible, and on the other hand unnecessary.

"It has been ascertained that many common bacteric forms produce spores which resist for a long time the germicidal action of all known agents which could be used in operations. Hence to exclude living microbes entirely from wounds is an impossibility.

"It is, on the other hand, happily unnecessary. It the first place, it appears that none of the bacteria which can cause mischief in wounds are of the spore-bearing kinds (exceptional occurrence of anthrax from infected catgut noted), while the sporeless bacteria have been shown by the most careful recent investigations to be deprived of life within a minute by a 1 to 20 solution of carbolic acid, the agent which we have always trusted for the purification of sponges and instruments, the hands of the operator, and the integument of the patient at the seat of operation.

"These are the points of greatest importance to attend to during the performance of an operation, the once dreaded atmospheric dust being, as it would seem, a matter that may be disregarded. . . . The effects of microorganisms upon the living body are greatly influenced by the dose—that is to say, by the numbers in which they are present at the seat of introduction. This seems to provide a clue to understanding how bacteria, in the attenuated and subdivided form in which they are present in the atmosphere, may be effectually disposed of by the natural antiseptic action of the blood and tissues.

"The glowing accounts published by Koch two years ago of the antiseptic properties of corrosive sublimate led us to adopt solutions of that substance in place of the 1 to 40 carbolic lotion for washing and irrigating our wounds. But . . . it turns out that the effects of the bichloride, supposed to be due to germicidal action, were in reality caused by the inhibitory power which, as shown by Koch, that agent possesses even when present in extremely minute proportions; and if, instead of being merely washed away from the objects upon which it has been made to act, it is got rid of by converting it into an inert sulphide, the original reports have to be toned down to an extraordinary degree. . . . We cannot suppose that corrosive sublimate, as I have used it, can have acted with germicidal effect upon the staphylococcus pyogenes aureus. My practice has been to abstain from irrigation during the operation, and at its conclusion to wash the wound with 1 to 500 solution, and irrigate during the application of the sutures with a 1 to 4,000 lotion.

"It would, however, be a mistake to suppose that no good can ever be done by corrosive sublimate used in the manner which I have described. Resisting as the staphylococci have shown themselves to that agent, there are other microbes very mischievous to wounds—such as the streptococcus pyogenes, the streptococcus of erysipelas, and the sporeless bacillus pyocyaneus, which are destroyed by very much weaker solutions.

"But if, for the sake of guarding against carelessness on the part of an assistant, we think it prudent to wash our wounds before stitching them, it will be wise for us, in the present state of our knowledge, to revert to the 1 to 40 solution of carbolic acid. This agent has been shown to be far more uniform in its action upon micrococci than corrosive sublimate.

"But here, as in other cases, prevention is better than cure—nothing that the surgeon can do can make up for want of care in his assistants. . . .

"When first I witnessed the remarkable fact of the entire cessation of suppuration as a result of relieving abscesses of their contents, and at the same time preventing the access of organisms from without, I inferred that microbes could have nothing to do with the production of the pus, but that it was caused by inflammation which, however it had originated, was kept up by the tension of the pent-up liquid operating through the nervous system. This was disproved with regard to acute abscesses by Ogston, and with regard to chronic ones by Koch's discovery of the tubercle bacillus. . . . I conceive that the acrid products of putrefaction act injuriously upon the pyogenic membrane, and prevent destruction of the micrococci by the natural antiseptics which is always disposed to operate, but, so long as the abscess is unopened, is hindered by the disturbing influence of tension caused by the rapidly accumulating pus."

MATERIA MEDICA AND THERAPEUTICS.

By C. O. HAWTHORNE, M.B., C.M.

A New Styptic: The Treatment and Prevention of Hæmorrhage.—The well known power of fibrin ferment, and the influence which salts of calcium exert upon the coagulation of the blood, have led Dr. A. E. Wright (late Grocers' Research Scholar) to conduct a series of experiments in order to determine the possibility of deriving some practical value from these physiological phenomena. As a result, he suggests for use as a styptic, a fibrin-ferment solution to which 1 per cent of calcium chloride has been added. Numerous trials upon dogs and rabbits showed the marked efficacy of such a solution. Thus, after division of all the veins of one side of the neck (except the common jugular) in a dog, Dr. Wright was able to arrest the hæmorrhage without the use of ligatures. He has only had limited opportunities of testing the value of the solution in the human subject, but it was found to act satisfactorily in various accidental cuts, as also in a case of hæmorrhage following supra-vaginal amputation of the cervix uteri, in which latter case it was applied on a plug of cotton-wool. Dr. Wright points out that the influence of this solution is physiological, and is exerted not on all the tissues but on the blood alone. Hence, its application is painless and does not produce disintegration, coagulation, or subsequent inflammation in the parts to which it is applied. He therefore claims that in this respect it is superior to the cautery, perchloride of iron, tannin, &c., and suggests its use in epistaxis, troublesome bleeding after leech-bite, and other cases where ligatures cannot be successfully or readily applied. His experiments make him confident that no danger of extension of intra-vascular coagulation is to be feared.

Further researches led to the conclusion that by the introduction of calcium chloride into the circulating blood the tendency of that fluid to coagulate is much increased, and that, too, without any risk of inducing thrombosis. When the blood is withdrawn, not only is coagulation unusually rapid, but the clot is exceptionally firm and tough, and this is the case even when the calcium salt has been administered by the mouth only a few minutes before the animal is bled. This suggests that calcium chloride might be usefully administered, not only in hæmophilia and before surgical operations, but also in cases of acute internal hæmorrhage occurring, *e.g.*, *post-partum*, and in enteric fever. Calculated upon the dose used for dogs, about 4 drs. of the salt in a pint of water would seem to be the appropriate quantity for a human being, though probably less would be sufficient.—(*British Medical Journal*, 19th December, 1891).

A New Method of Blood Transfusion.—Dr. Wright proposes another practical application of our improved knowledge of the relation which

exists between blood coagulation and the presence of calcium salts. The fact that when these salts are removed by precipitation as calcium oxalate, the blood can be kept in a permanently fluid condition, seems likely to render the practice of transfusion much more easy and much more safe than it is at present. Such decalcified blood has been successfully injected into dogs that had been subjected to extreme depletion. The exact proportion of sodium oxalate necessary to remove all the calcium salts from human blood has not yet been accurately determined.—(*British Medical Journal*, 5th December, 1891.)

The Use of Oxygen in Acute Respiratory Affections.—In the *British Medical Journal*, 23rd January, 1892, Drs. Lauder Brunton and Marmaduke Prichett reported a case of acute pneumonia in which marked, though unfortunately, only temporary benefit followed the inhalation of oxygen. The patient, when first seen, appeared to be moribund, but under the use of the gas he rapidly regained consciousness, his colour became natural, and he expressed himself as feeling comfortable and well. Previous venesection and the hypodermic administration of strychnine had proved useless. A similar result is reported by Mr. T. Langston in a case of acute bronchitis, though here too the improvement was not maintained. Dr. Markham Skerrett writes in confirmation of these views, and draws attention to a case reported in the *Year Book of Treatment* (1892). The patient was suffering from pneumonia, and received no relief from energetic stimulation. Inhalation of oxygen had a good effect, but as soon as the gas had stopped she became moribund. The gas was then given by artificial respiration, and its continuous administration maintained for 106 hours, at the end of which time the breathing was natural. The patient recovered without further accident. Mr. Aubrey Blakiston (*British Medical Journal*, 23rd January, 1892) also contributes a note in favour of this treatment. He has adopted it in three cases of pneumonia and one of acute bronchitis. All the patients recovered. He has also found the inhalation of oxygen of service in relieving the paroxysms of asthma. A case, similar to Dr. Brunton's, is also noted by Dr. Gilchrist of Nice.

Hydrastis Canadensis as an Antihidrotic in Phthisis.—The value of this substance—which has been recently admitted to the *British Pharmacopœia*—as a remedy for the night-sweats of phthisis has been observed by Dr. Cruise. The fluid extract had been prescribed for the arrest of hæmoptysis, and it was noticed that the customary night-sweats did not appear. This being repeated led to the administration of 30 minims of the fluid extract every evening to a number of patients, and the results were most satisfactory, even in cases where atropine, agaricin, &c., only produced partial suppression of the sweating.—(*Merck's Bulletin*, November, 1891.)

Benzonaphthol: a New Intestinal Antiseptic.—MM. Tron and Berlioz recommended the compound formed by the union of benzoic acid and benzonaphthol as superior to the salicylate of naphthol, on the ground that the latter by necessitating the elimination of salicylic acid by the kidneys, may injuriously affect those organs when they are not perfectly sound. On the other hand, when benzonaphthol is introduced into the alimentary canal, the benzonaphthol remains in the intestine and acts as an efficient antiseptic, whilst the benzoic acid is eliminated by the kidney in combination with alkaline bases. This elimination is accomplished without strain; the salts too exercise a diuretic influence, and notably reduce the toxicity of the urine.—(*Practitioner*, December, 1891.)

The Existence of a Mydriatic Alkaloid in Lettuce.—Mr. T. S. Dymond, during a research conducted in the laboratory of the Pharmaceutical Society, has demonstrated the existence, both in wild and cultivated varieties of lettuce, of an alkaloid identical with hyoscyamine. It is most abundant when the flowering stage of the plant is reached. This is the first discovery

of the alkaloid in a plant not belonging to the natural order *Solanaceæ*.—(*Pharm. Journal*, 5th December, 1891.)

Pharmacopœias.—At the recent meeting of the Naturforscher Society, Dr. Thoms mentioned some of the results of a comparison of the various pharmacopœias, made by Dr. B. Hirsch and himself with a view to drawing up propositions for securing uniformity of composition and characters in medicinal preparations in general use. The number of names of drugs, chemicals and galenical preparations contained in all the pharmacopœias at present legally authorised was stated to be 3,762. Of these, 2,069 occur in only one pharmacopœia and 613 in two, whilst no more than 154, or about 4 per cent, are included in all. But if the calculation be limited to the six pharmacopœias issued recently, those for Austria, Germany, Hungary, Japan, Netherlands, and Russia, the approximation to uniformity appears to be greater, for out of the 1,162 articles made official in these works, 224, or 19·28 per cent, are included in all of them.—(*Pharmaceutical Journal*.)

The New Russian Pharmacopœia (Fourth Edition, 1891) has recently been issued. Compared with the preceding, it contains a smaller number of articles, 318 having been discarded, while only 100 new ones have been added. Among these we find abstracta, cascara sagrada (cortex rhamni purshianæ), &c. The total number of articles is 808.—(*American Druggist*.)

Memoranda.—In a lecture recently delivered before the Pharmaceutical Society, Prof. Bayley Balfour, in speaking of botanical enterprise in relation to pharmacology, drew attention to the great benefit to medicine which had followed the cultivation of the cinchona plant in India and Ceylon, and stated that, whilst in 1860 not a pound of cinchona was to be got from Ceylon, in 1886 no less than 12,872,384 pounds were imported into Great Britain from that island alone.

"A remarkable case of lead poisoning" is reported in the September number of the *Australian Medical Gazette*. The supposed cause was the point of a black lead (!) pencil which had been driven into the back of the hand, and remained imbedded there for six or seven weeks.

M E D I C I N E.

By T. K. MONRO, M.A., M.B.

Adeno-gypsis: a New Trade-Disease.—The *Bulletin de l'Académie de Médecine* of 12th January contains an important communication made to the Academy by M. Albert Robin, on what he regards as a new, or at least hitherto undescribed, "trade-disease." M. Robin proposes to call it "adeno-gypsis," or "stucco-plasterer's disease" (*adéno-gypsose ou maladie des stucateurs*). He begins by referring to certain recorded cases of tuberculosis, particularly of bones, in which the *post-mortem* revealed calcification of lymphatic glands in different parts of the body. In one case of very chronic tubercular disease there was noted during life an alteration of physical signs in the epigastrium, which was shown by the autopsy to be determined by calcification of the mesenteric glands. M. Robin then excludes all such cases from consideration, and points out that his case is peculiar in two ways, viz.: (1) The complete absence of a tubercular lesion in other organs; (2) The fact that chemical analysis of the concretions gave the clue to their origin.

The case cannot be given in detail, but it may be said that there was a history of repeated attacks of acute bronchitis during many years past, the disease ultimately becoming chronic. Further, the patient had been under observation for a month and a half about two years before his fatal illness, the diagnosis at that time having been "right pneumonia with general

bronchitis." In his last illness the symptoms did not furnish any very secure grounds for a diagnosis, but they pointed to a severe affection of the respiratory system. The chief of them were dyspnoea, at first moderate, but latterly intense; slight fever; abundant muco-purulent expectoration, with crepitant râles and friction-sounds in the chest; later on, painful swelling of the left shoulder-joint; three weeks afterwards, symptoms and signs of pericardial effusion; and finally, death, after a residence in hospital of about two months.

The following conditions were observed at the *post-mortem*:—Dry pleurisy on both sides. The left visceral pleura showed several areas of fibrous thickening and of calcification, of considerable extent. Two of these calcified pieces were extremely thick, and were situated, the one at the apex of the lung, and the other in the costo-diaphragmatic *cul de sac*, where it filled up the space and united the visceral pleura to the tendon of the diaphragm. On the right pleura there were thickenings, but no calcifications. The lungs were congested, but contained no tubercles and no cicatrices. The most interesting lesion in the chest was a very extensive calcification of the mediastinal lymphatic glands, this change being practically limited to the *right side*. One of the large calcareous gland-masses enclosed and compressed the right bronchus. Several other nodules were present among the divisions of the bronchus, pressing especially upon that which entered the middle lobe of the lung. The axillary and subclavicular glands of the right side were also calcified, and there was hypertrophy and calcification of the lymphatic glands of the abdomen.

The sputum had been examined on two occasions, but no tubercular bacilli were found.

M. Robin points out that these glandular changes could only be brought about in three ways, viz.: (1) by a degeneration secondary to some primary lesion; (2) by a primary impregnation with mineral salts, absorbed directly by the lymphatics from the mucosa of the intestine or the alveoli of the lungs; (3) by an abnormal deposit, in tissues whose vitality is diminished, of mineral matters usually held in solution by the fluids that bathe the tissues.

The first hypothesis (which suits the majority of cases) fails here. With regard to the second, a theory is suggested by the patient's occupation—plastering in stucco. He had to sift the plaster very finely before adding the mineral colours to it, and he had afterwards to polish the stucco with three different kinds of stone in succession. The patient had been engaged in this work for forty years, so that he had lived a great deal in an atmosphere loaded with the powder of sulphate of lime, of which he had inhaled much, and, no doubt, swallowed a good deal too.

Now, the salts of pleural, pulmonary, and glandular concretions have often been analysed, and chemists have all been agreed in excluding sulphate of lime from the constituents. On the other hand, the concretions in M. Robin's case yielded about 20 per cent sulphate of lime, and 45 per cent phosphate of lime, the remainder being organic matter. *There was no trace of carbonates.* The last fact excludes the explanation that might be afforded by the third hypothesis; for this implies the deposition of salts which are normally present in solution in the fluids of the body. Now, carbonates do exist, while the sulphate of lime does not exist normally in the fluids that bathe the tissues. M. Robin, therefore, considers that his case had an origin in many respects similar to that of ordinary anthracosis.

The Therapeutics of Music.—An article has been going the rounds of the medical press, on the therapeutic value of music. It is sincerely proposed to employ this "therapeutic agent" scientifically in the treatment of disease. We have not copied it, as we can see nothing practical in it. Indeed, nothing can be more chimerical. The blue glass craze was sense as compared to it, notwithstanding Shakespeare's dictum that "some men, when a bag-pipe sings i' the nose, cannot contain their urine." The following airs have been suggested by the *Med. Press* as suited for the cases enumerated—viz., Retarded labour from inertia, "Conin' Thro' the Rye;" Cases of

chronic deafness, "Come Back to Erin;" Epilepsy, "Let Me Like a Soldier Fall;" Pyrexia, "The Coolin'"; Melancholia, "The Heart Bowed Down;" Cases of doubtful diagnosis, "Oh, Dear! What Can the Matter Be?"—(*Canada Lancet*.)

Removal of the Left Lobe of the Liver for Cancer.—The patient was a woman æt. 31, who had suffered for a long time from digestive disturbances. In course of time a tumour developed in the epigastrium, and grew to the size of an apple. It was situated two fingers' breadth below the xiphoid process. No pedicle could be felt. Distension of the stomach by gas caused no alteration in the position of the tumour, and the stomach itself contained free HCl. The tumour was therefore supposed to be connected with the liver, though this organ as a whole was not enlarged. When the abdomen was opened by Prof. Lücke, large cancerous nodules were found in the left lobe, which it was then determined to remove. The lobe was drawn out through the wound, and an elastic tube was secured round its base. The tumour was then removed by a ligature, which was tightened very gradually, so as to diminish as much as possible the risk of subsequent bleeding.—(*Deutsche Medicinal-Zeitung*.)

Masked Forms of Uræmia.—M. Guyot called the attention of the Société Médicale des Hôpitaux to certain grave forms of anæmia, which might be overlooked owing to their being masked by hemiplegia, with or without convulsive crises. These cases are more frequent than might be supposed, and the existence of an anterior facial neuralgia is sometimes of great help in the diagnosis. Dangerous uræmic attacks, convulsive or comatose, may supervene without any prodromata; while the urine may contain but a trifling quantity of albumen. These seizures disappear speedily under the influence of free blood-letting; otherwise death frequently takes place. The usual treatment for albuminuria should, of course, also be instituted.—(*La France Médicale*.)

Nephritis without Albuminuria.—Billaux (quoted in *Deutsche Medicinal-Zeitung*) points out that albuminuria in nephritis is only one symptom, and may be wanting—a fact which must be borne in mind by the physician. Certain ulcerations of the stomach and duodenum are the result of arterial sclerosis occurring in Bright's disease. It is therefore important, in cases of hæmorrhage from the digestive tract, not to overlook the possibility of a chronic nephritis.

Melanoderma, with Pigmentation of the Buccal Mucous Membrane in Subjects Affected with Pediculosis.—M. Thibierge described lately to the Société Médicale des Hôpitaux two cases which seemed to show that the presence of pigmented patches on the mucous membranes is not a pathognomonic sign of Addison's disease.

The first was a typical case of vagabondismus (*maladie des vagabonds*), a complicated condition due to several factors, of which the chief are these—viz., the presence on the skin of the pediculus corporis, defective alimentation, and constant living in the open air or in foul lodging-houses. The pigmentation, which usually attains its maximum about the neck and waist, and which is most highly developed at the periphery of pustules which arise through the irritation caused by the parasites, may become generalised. It is characterised clinically, not only by its distribution, but also by the pustules, by the excoriations due to scratching, and by the subsequent cicatrices, which are intermingled with the pigmented areas. It is distinguished from Addison's disease by its affecting in preference the protected parts of the body, and by a brownish tint which differs from the slightly greyish one observed in the supra-renal cachexia. Moreover, it is not associated with the asthenia, or the abdominal symptoms which are such important terminal phenomena in cases of bronzing of the skin.

This patient, then, presented all the features that characterised a highly

developed case of pediculosis corporis, including those that separate it from Addison's disease. He was not in perfect health, certainly, but he was not cachectic, and had latterly been improving; so that, except for one fact, nothing could authorise a diagnosis of disease of the adrenals. The one fact, pointing the other way, was that the mucosa of the buccal cavity was the seat of a true pigmentation, in the form of rounded patches, 3 or 4 mm. in diameter. M. Thibierge's second case possessed the same features.

M. Chauffard said that some time ago he had seen a patient, who proved to be phthisical, and who had a very peculiar colour of skin, with pigmented areas on the buccal mucous membrane. M. Chauffard had therefore concluded that this was a case of Addison's disease. When the patient died, however, the autopsy showed that the supra-renal capsules were perfectly healthy; and as pediculosis had long been present, M. Chauffard now felt inclined to place the case alongside those which had just been related by M. Thibierge.—(*La France Médicale*.)

DISEASES OF THE SKIN.

By DR. A. NAPIER.

Chromic Acid in Syphilitic Ulceration.—Dr. Ernest Feibes confirms the great value of this remedy, as pointed out by Schuster, Vidal, Butlin, and others. He states that he always uses chromic acid in the local treatment of syphilides of the mucous membrane, and with results to be obtained by no other methods, so that the application of the nitrate of silver point falls more and more into disuse. A case is quoted of a man who had already been treated for several weeks, on account of specific ulcers of the tongue, with mercurial pills and the local application of nitrate of silver. The result not being satisfactory, the patient was put through a course of inunction, and the parts touched with the silver point. No change being perceptible within ten days, a solution of chromic acid (one to two) was used locally. After the application the ulcer was seen covered with a yellow pellicle, which separated in two days, showing the affected part much smaller; and complete healing occurred within eight days, the ulcer being touched every second day. Ten cases of broken-down gummatous nodules of the tongue were treated with chromic acid and did extremely well, healing in a much shorter time than with the nitrate of silver treatment. The application is but slightly painful, though the taste is very objectionable. Mucous patches are rapidly removed by the chromic acid solution. Feibes has repeatedly seen them disappear in two to three days. A similar result is obtained in cracks around the angle of the mouth. One of the most obstinate forms of syphilis of the mouth, the specific *lingua geographica*, is affected by no treatment so readily as by this. In such a case, the tongue was carefully dried with cotton wool, and so isolated, after which concentrated chromic acid solution was applied by means of a brush, allowed to remain on for some minutes, and then washed off with acetate of aluminium solution. In three days, the necrotic tissue had separated, displaying the normal looking tongue. Five such applications within fourteen days sufficed for a complete cure. Eleven cases of lingual psoriasis were likewise treated satisfactorily. When warty irregularities were present they were first scraped with the sharp spoon, and when the bleeding had ceased, touched with chromic acid. Finally Feibes has found the acid very useful in mercurial stomatitis. Here a fine sound, carrying cotton-wool, is introduced between the tooth and the gum, and the foul matter carefully removed. Another sound dipped in concentrated chromic acid solution is then inserted between the gum and tooth, and the patient directed to use acidulated chloroform water on account of the disagreeable taste. This method has yielded most excellent results.—(*Therapeutische Monatshefte*, No. 11, 1891; *Practitioner*, p. 126, February, 1892.)

Bony Deposits in the Skin.—Mr. Faulder White read a paper on this subject before the Birmingham and Midland Counties Branch of the British Medical Association. He first quoted the case described by Mr. Jonathan Hutchinson in the *Medical Times* for 1860, and then recounted the following case met with in his own practice:—Col. C., aged 65, met with a railway accident in 1842. The skin of his legs was almost completely destroyed by the steam from the burst boiler. The process of healing occupied five years. During the ensuing quarter of a century the cicatrices had "time to wear out," the new skin becoming generally movable over the underlying structures. During the next twenty years a development took place of bony masses in the deeper layers of the skin. At one time a bony mass encircled the left leg. Plates formed in each calf and in front of the knee joint. The removal of some plates became necessary on account of irritation, causing acute dermatitis or sloughing ulcers. Patches of ichthyosis formed below the knees, proving that ichthyosis is not always congenital, as Morris states it probably is. Mr. White said that the bony plates formed part of the tissues in which they lay, and appeared to have originated in an actual transformation of these tissues. To the naked eye they presented all the features of true bone; microscopically there were no typical Haversian systems, but glistening homogeneous lamellæ. On the other hand none of the usual appearances of granular degeneration were seen. Mr. White quoted some facts which lead to the belief that the connective-tissue cell may be an important agent in the process of calcification. He referred to the belief that in all cases of calcification there exists some local impediment to the circulation. In regard to the bony plates—the subject of his paper—he submitted that they were the result of the simultaneous action of the process of deposition and incorporation, the least soluble salts of the nutritive fluids being left by a particularly sluggish current to become subject to the selective activity of the connective-tissue cell.—(*The Birmingham Med. Review*, p. 289, vol. ii, 1891; *Practitioner*, p. 132, February, 1892.)

Alkalies in Universal Pruritus.—Lange (in *Jour. of Cut. and Genito-Urin. Dis.*, October, 1891), on the basis of four cases, recommends such alkalies as sodium bicarbonate and lithium carbonate in the treatment of universal pruritus. In one case, that of a lady of 51, the itching had localised itself in the genital region, and was so extremely severe, that the patient seemed threatened with actual loss of reason with suicidal impulses. Ultimately she became very emaciated, and the itching spread over the entire surface, and sleep was obtained only through large doses of chloral, and the local application of very hot compresses. She recovered completely under the alkaline treatment, and the local use of carbolio acid compresses. As a general indication for such treatment, the author speaks of finding abundant deposits of uric acid and urates in the urine.

Skin Eruptions in Uræmia.—In the *British Medical Journal*, p. 1099, vol. ii, 1891, Dr. Le C. Lancaster draws attention to an eruption which occurs most commonly in cases of chronic interstitial nephritis, and which must be regarded as a grave prognostic indication—seven out of eight patients in whom it occurred died within five weeks of its appearance. It takes the form at first of bright red maculæ or papulæ on the extensor surface of hands, forearms, and legs, spreading very soon, however, so as to involve the whole body. Within a few days the eruption may fade, being followed by copious desquamation, while the skin is left thick and brawny; or the eruption may assume an eczematous form, with exudation of a sticky fluid and the formation of scabs and crusts; or, as in the graver cases, pustulation may occur, or even the formation of small abscesses, as a sequel to the eczematous stage. Throughout the whole course of the skin affection there is severe itching.

Books, Pamphlets, &c., Received.

- Ophthalmic Notes, by A. Vernon Ford, M.R.C.S. Eng. London : Baillière, Tindall & Cox. 1891.
- Catechism Series—Public Health. Part III : Sewage and its Treatment. Part IV : Vital Statistics. Edinburgh : E. & S. Livingstone.
- Examination Questions in Practice of Medicine, with Answers. Part I : General Diseases, by "Utile quod facias." Edinburgh : E. & S. Livingstone.
- Yellow Fever : a Monograph, by Jas. W. Martin, M.D. Edinburgh : E. & S. Livingstone.
- A Year Book of Treatment for 1892. London, Paris, and Melbourne : Cassell & Co., Limited.
- The Chinese, their Present and Future—Medical, Political, Social, by Robert Coltman, Jun., M.D. Philadelphia and London : F. A. Davis. 1891.
- Pye's Surgical Handicraft. With 235 Illustrations on Wood. Third Edition. Revised and edited by T. H. R. Crowle, F.R.C.S. Bristol : John Wright & Co. 1891.
- Epitome of Mental Diseases, by Jas. Shaw, M.D. Bristol : John Wright & Co. 1892.
- Consumption, How to Prevent it and How to Live with it, by N. S. Davis, Jun., A.M., M.D. Philadelphia and London : F. A. Davis. 1891.
- Syphilis in Ancient and Prehistoric Times, by Dr. F. Buret. Translated from the French, with Notes, by A. H. Ohmann-Dumesnil, M.D. Philadelphia and London : F. A. Davis. 1891.
- A Study of Influenza and the Laws of England, by Richard Sisley, M.D. London : Longmans & Co. 1892.
- A Code of Rules for the Prevention of Infectious Disease, being a Series of Resolutions passed by the Medical Officers of Schools Association. London : J. & A. Churchill. 1891.
- Ambulance Memoranda : a Synopsis for Teachers and Pupils, by John Aikman, M.D. Glasgow : David Robertson & Co. 1892.

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ORIGINAL ARTICLES.

CERTAIN ASPECTS OF CORPUSCULAR ACTION.*

BY PROFESSOR JOHN CLELAND M.D., F.R.S.

GENTLEMEN,—I cannot but feel gratified by the compliment which your President has paid me in asking me to read a communication to this learned Society, especially when I recollect the practical subjects to which the Society is devoted, and that my professorial duties have, since my return to Glasgow fourteen years ago, kept me aloof from the practice of our profession.

I have thought that in the circumstances it will be well to seek for some topic kindred to anatomical studies which, while it may be approached from the anatomical side, may yet offer considerations to be taken into account in solving the problems with which physicians and surgeons have to do. And such a topic I seem to have found in Corpuscular Action. For, owing to the advances which experimental physiology has made in investigating central influences, whether exercised directly by the nervous system or through the medium of the circulation, the part played by the corpuscles is perhaps liable to receive too little thought, save in relation to diapedesis and phagocytes.

It has struck me for many years as remarkable that the very period in which the action of external causes was

* Read before the Glasgow Medico-Chirurgical Society, 22nd January, 1892. For discussion, see page 303.

receiving special attention in relation to its power of modifying species, and during which the extreme view seems to have entered the imagination of many that the whole source of formative processes might be traced back to the operation of the forces at work in the inorganic world, has witnessed the total extinction of the old attempts to account for cell-life by precipitation, osmosis, and such like physical causes, as well as the recognition by every one that in the living corpuscles of the tissues we have to deal with organisms within organisms—elementary organisms similar to those in whose structure they take part, derived from parents, assimilating nourishment, endowed with irritability, and possessing in at least the early part of their lives reproductive power. This modern notion is certainly very different from that held by the founder of the cell-theory; for we find Schwann developing the view “that organisms are nothing but the form under which substances capable of imbibition crystallise.”

I have long been in the habit of teaching, and regard it as a generalisation from which there is no escape, that every mass of living protoplasm exists in two conditions, of which the extremes are—one, activity of irritability with rest from nutrition; the other, quiescence of irritability and activity of nutrition; and this, in the case of such specialised tissues as muscle, nerve, and secreting glands, means that the work done for the economy is in abeyance during the nutrition of the corpuscle, while conversely the corpuscular nutrition is in abeyance when work for the economy is done. Thus, for example, during muscular exercise the abeyance of muscular nutrition seems well established by the well known experiments of Fick and Wislecinus, being made apparent by the preference of muscle for carbonaceous fuel in producing contraction. Muscular exertion increases the products of carbonaceous oxidation; but increase in urea, the expression of nitrogenous changes such as result from decomposition of muscular substance, does not occur at the same time; rather it is diminished till exercise is desisted from. The effect of contraction on the nutrition of amœboid corpuscles would be much more difficult to investigate; but it may fairly be judged that the contractility of these bodies is of the same description as that which is exhibited to such an extent in muscle; and in that case it may be rationally assumed to have similar relations to the processes by which they grow. Evidence of abeyance of self-nutrition is also to be found in the case of secreting corpuscles, by means of the experiment on the submaxillary gland of placing a canula in the vein, when it is found that the blood flows

brighter when the chorda tympani is stimulated than when the gland is at rest. On the whole, the practical lesson is obvious, that when repair of corpuscular structure is wanted, nervous excitation is to be avoided.

Even, however, if we accept the mutual antagonism of nutrient activity and that irritated condition of which nervous action and muscular contraction are types, there seems to be much to settle between the two extremes. What is the relation of proliferation to the irritated state? Reproduction is, no doubt, in the general a form of nutrition, and in the gross it will be accepted that circumstances favourable to corpuscular growth are favourable also to the production of new corpuscles, a certain liberty of growth being requisite for proliferation, and it being the natural repetition of events that new corpuscles should in process of time become parents of others. But it is not plain that the conditions which favour the maintenance and enlargement of one corpuscle are identical with those which encourage it to break up into several. Indeed, they are not identical, as may be seen from the more specialised elements losing reproductive power. Muscular fibre loses it altogether. The unstriped fibres of the pregnant uterus can be seen developing out of the corpuscles in the connective tissue which surround them, and when parturition has taken place they undergo degeneration and disappear. So also, when large numbers of striped fibres have been destroyed by fatty or waxy degeneration consequent on fever, it has never been seen that the surviving fibres break into several to supply the place of those that are gone, but new fibres are formed by the differentiation apparently of leucocytes. In the case of nerves, it is true that regeneration takes place after injury; but it may be questioned if we ought not to look at the whole length of an axis-cylinder as but a branch from a nerve-corpuscle, capable of continuing to live only when in continuity with the corpuscle, and extending itself when broken short, which is quite a different thing from reproduction. Finally, within nerve-corpuscles proliferation only takes place in pathological circumstances, and the products are but undifferentiated corpuscles. Thus, the highest form of corpuscular life may be held to be incompatible with reproduction.

But reproduction is not the only thing which complicates the nutrition of corpuscles. The living corpuscles are the centres of many changes which do not necessarily, so far as we know, affect their own intimate composition. These

may be described as absorptive and secretory. With that absorption which consists of the mechanical action of the absorbent vessels in removing colloids in solution away from the tissues and into the blood-vessels, and also with the passage of other substances through the walls of capillaries we have nothing to do; but there are two varieties of corpuscular absorption. There is absorption from the outside such as is carried on by intestinal epithelial cells, and that of solid substance within the body, whether living tissue, foreign bodies, such as ligatures of fisher's gut, or tissue which has died, and is practically equally foreign to the economy. Secretory actions are also of more than one variety, for they are not necessarily under the influence of nervous stimulus, like the secretion of saliva and gastric juice. I do not know of any proof that the hepatic cells are regulated in their action by nerves to them, or that they are in an irritated condition in carrying out the functions of the liver; yet they were the first corpuscles in the body in which foreign matter was actually seen within the protoplasm, on its way from the blood to the excretory ducts. There is also a great deal of secreting action carried on by corpuscles in the form of deposit of matrix, which is certainly independent of the nervous system.

I should like to remark here that it would greatly simplify ideas with regard to absorptive and secretory actions, if it were recognised that they are fundamentally actions of the same description, with the one distinction that, in absorption, substance is drawn through the corpuscle, to fall, in the long run, but never immediately, into the blood; while, in secretion, substance is drawn by the corpuscle from the blood, to be poured out on a free surface, or to be deposited in the tissues. The direction of the current is the sole difference. Both one and the other may occur with or without chemical change. Thus, in the case of secretory action, urea and uric acid are partly manufactured in the kidney, partly removed by it from the blood; and, in the case of absorption, substances are passed on with little change by the intestinal epithelium, while the absorption of bone matrix involves its being converted into a soluble substance. The exact relation of the translating process to the corpuscular nutrition would appear to vary in both absorption and secretion. In intestinal absorption it is difficult to suppose that the current drawn in from the chyme can be used by the epithelial corpuscles as pabulum, and equally difficult to suppose that another current can at the same time be drawn from the

blood to nourish the protoplasm, and therefore it is most probable that we have abeyance of corpuscular nutrition during the carrying on of function, though not so far as known, stimulated by nerves. But in absorption of solids in the tissues it is difficult to determine to what extent the substance taken up aids the life of the corpuscle, and the absorptive action is associated with such changes as growth and proliferation of the corpuscle itself; and it remains to be determined what degree of irritation, if any, is most favourable to absorption of matrix. It appears likely that in secretory action or throwing out of substances, there is quite as much variation of the relation to corpuscular nutrition. While in secretion under the influence of nervous stimulation there may be actual abeyance of nutrition, the deposit of matrix of connective tissue, cartilage and bone seem to be carried on in conjunction with corpuscular growth and proliferation; and it remains to be determined what are the degrees of irritation most favourable to deposit of matrix; and also of the different kinds of matrix, although it is evident, at the outset, that the kind of matrix depends on some other factor besides the mere amount of irritation.

The changes which take place in cartilage and bone are particularly interesting in connection with the relations of corpuscular growth, corpuscular proliferation, and deposit and absorption of matrix of different kinds. I propose, therefore, to follow them in detail, for the sake of the light which they throw on corpuscular life in general. In early embryonic life, cartilage becomes differentiated from the surrounding tissue by alteration of the substance thrown out by the corpuscles. This substance is chemically altered, and becomes so firm as to prevent corpuscular locomotion and prevent extension of branches. Afterwards, from a condition of comparative quiescence, a reawakened activity begins in the case of temporary cartilage, the steps of which may be followed more easily than changes in other tissues. In those instances in which the corpuscles are arranged in rows taking different directions, their enlargement and the throwing out of matrix cause that arrangement to be departed from, so that there is a zone, as is well known, of single corpuscles scattered broadcast. But this is immediately followed by proliferation and continued growth, at first involving both corpuscle and matrix, and producing lozenge-shaped groups, each group the product of a single corpuscle. Then, gradually the growth is concentrated on the corpuscles themselves, while as to the matrix, not only does new sub-

stance cease to be poured out, but old substance is made to disappear, until greatly enlarged corpuscles are arranged close together with comparatively little matrix between them. But even this does not express all the change in the corpuscular activity; for it is not a mere turn of the tide which is observed, a mere sucking up of what had been previously deposited. That might explain the phenomena, if protoplasm were changeable into chondriniferous matrix, and chondriniferous matrix into protoplasm; but this cannot be said to be the case at any time; and at the present stage there is the additional feature that the dwindling matrix is changing character, and becoming impregnated with mineral matters. There seems to be no escape from the conclusion that fine currents of sap are everywhere percolating through the matrix, drawn to the corpuscles, furnishing them with nourishment, and retiring from them bearing with them the products of waste, also that the corpuscles do at the same time both exercise a solvent action on solid substances round them, and cause dissolved matters to be deposited.

In the deeper part of the granular zone, at the surface of ossification, two remarkable conditions contrasting one with the other are often found close together. The one condition consists, in the contents of a capsule having undergone such rapid proliferation that it presents a multitude of minute corpuscles within it, while, abutting against it on one side, there may be large corpuscles not begun to divide, and on the other it is about to open or already opens into the primitive marrow-spaces filled with similar minute corpuscles. All this, while calcification progresses in the bars of matrix between. The other condition consists of deposit of calcified matrix within capsules, and in close contact with corpuscles which either continue single or have only broken up into a small number, so that balls of osseous matrix are met with, pressing in on one or several corpuscles, which have become branched by unequal shrinking. Thus it is exceedingly difficult to make out a precise relationship between the condition of self-nutrition of the corpuscles and their influence on surrounding substance. But, to my mind, it is clear that generations of the same corpuscles will at one time surround themselves with more or less fluid, at another with gelatiniferous substance, at a third time with chondriniferous material, and at a fourth with calcified matrix; and, take it altogether, in a general way, and within limits, the evidence seems to show that corpuscular activity is favourable to reabsorption of solid surroundings,

and pouring out of fluid, while quiescence of corpuscular nutrition favours deposition of solid surroundings. Examining more particularly, however, it is observable that at certain stages of growth of cartilage both increased proliferation and increasing size of corpuscles are found accompanied with increased deposition of matrix, while at other stages both proliferation and increasing size are associated with absorption of surrounding matrix; the latter association of conditions being nearer to the ossifying edge, the source of blood supply, and of possible irritation from being the seat of the greatest total action.

With regard to calcareous deposit, it is often found in connection with diminished corpuscular activity, sometimes coming on after an undue increase of activity, as in calcification of fibrous tumours, tubercular and other deposits, and in the walls of arteries; and sometimes without previous pathological activity, as in the costal cartilages of the old. I would note, however, that in the costal cartilages it is very generally in the central parts that granular deposit begins, as distinguished from perichondrial ossification, and that it is there that former activities have been greatest; for there the corpuscles are large, and secondary corpuscles most frequent, while close to the perichondrium the corpuscles are small, as if blighted by the too great pressure of that membrane. Further, it is in the substance most removed from the corpuscles that this granular ossification of costal cartilage goes on most freely; and that is just in harmony with the granular deposit at an ossifying surface taking place first in the centres of the bars which divide the vertical rows of enlarged corpuscles. When you have got calcareous deposit within the capsules, it is in connection with weary corpuscles which cannot get up their reproductive strength, but have for the time a tendency to shrivel.

Pursuing further the history of ossification, the herds of corpuscles liberated from cartilage-corpuscles are not distinguishable from those in the marrow-spaces into which they fall, and, in my opinion, the appearances do not permit of doubt that they are some of them destined to form marrow-cells, some to form walls of blood-vessels, and others to be bone-corpuscles, just as other corpuscles entering originally, either themselves or their parents, from the periosteum, have these various destinations.

The later changes in bone seem to exhibit distinctly a similar sequence of processes. That is to say, they are inexplicable on the supposition of different kinds of corpuscles

being set apart for different purposes, as leucocytes, marrow-cells, osteoblasts, and osteoclasts. They are to be taken as exhibiting different absorbing and secreting actions of the same families of corpuscles in different circumstances. Absorption of bone-matrix may begin either from underneath the periosteum, or at the wall of a medullary space, or by enlargement of a Haversian canal; and perhaps most frequently of all it begins in connection with a lacuna. In an excited activity of nutrition a single bone-corpuscle enlarges, and may proliferate, producing a protoplasmic mass with a number of nuclei within a ragged space, larger than the original lacuna, but hemming in the corpuscle sufficiently to prevent the protoplasm separating into masses surrounding the nuclei one by one. At least such is the appearance, and I am not sure that this explanation of the phenomena by the action of pressure is not applicable to the giant-cells, osteoclasts, or myeloplaxes, wherever found in bones. I can have no hesitation in believing that the multinucleated corpuscles found in limited spaces fall asunder when the spaces become larger, to become in turn osteoblasts, connective-tissue-corpuscles, or marrow-cells, according as in the struggle for existence they are exposed to different immediate surroundings.

The details of the mechanism by which changes take place in bone in old age seem to be as yet but ill understood, and though it is a subject which occupies much of my attention, I do not feel that I ought to do more with reference to it at present than to venture a remark or two principally in relation to the thickening and thinning of the skull, to which attention has been specially called by Sir George Humphry, and still more recently by Dr. Eve. I think that it will be found that increased thickness and density precedes old age absorption of bone. Dense bones are specially characteristic of the later part of Shakespeare's fifth stage of life; thinning belongs rather to decrepitude. I find also that absorption is carried on very largely in old age from the Haversian canals; possibly, because there the old corpuscles are still capable of being wakened to a crazy activity by the nearer presence of blood. But what specially attracted Humphry's attention was the extraordinary thinning sometimes found in the parietal bones, and he jumped to the curious explanation scarcely satisfactory to himself, that these might be caused by pressure of the occipito-frontal aponeurosis. That explanation is at least insufficient, because the squamous parts of the temporals are subject to as great thinning in the centre as the parietals, and so also are the parts of the occipital opposite

to the inferior fossæ. But it is noticeable that the margins of bones, where the sutures have been, retain a considerable thickness when the middle parts are thinned; and I would point out that these are the youngest, the latest developed parts of the bones, in which the thickened stage has not yielded to the shrivelled and thin stage. From examination of sections, I find that absorption proceeds principally from the diploë. Only in the later stages does the inner table become porous, while the outer table maintains its close-grained appearance.

One point I scarcely like to leave untouched, though it has not immediately to do with corpuscular action—that is the traction exercised on compact bone by the results of the absorption going on beneath it. The depressions on the parietal bones of thinned skulls are not caused by disappearance of superficial layers, while increased deposit underneath takes place so as to keep up an outer wall on the surface of the diploë. They are the result of dragging in of the superficial layers. This indicates a constant tendency for a larger amount of substance to pass away by the blood-vessels than enters by them. The corpuscles of the tissues may or may not be the factors in dissolving the bony matrix, but one must look within the circulation, I imagine, for the force which exercises the drag. All that I can be at present sure of is that the drag most certainly exists. It is this drag which brings the surfaces of the iliac blades together so as to make the blades translucent in the middle, and it is the same drag which enlarges in old age all the air-cavities of the skull. One would think, to look at the enormous maxillary antra extending into the malar bones, frontal sinuses, passing out to the external angular processes and sphenoidal processes, running back into the occipital, and laying bare the walls of the Vidian canals in old age, that Father Time had breathed into the old man's nostrils and blown these sinuses up; but as such a theory is not scientifically tenable, we must suppose that the traction is on the other side of their bounding walls, and caused by the same forces as absorb the diploë.

Returning, however, from this digression, it will be noticed that I have referred principally to histological evidence of transmissions conducted through corpuscles, in association with different degrees of irritation and nutrient activity. Much practical bearing of these details, not yet distinct to my vision, will be worked out by others. Meanwhile, I would say a few words on transmission of action and sub-

stance by corpuscles in disease, and in the operation of medical applications. In reference to disease, two illustrations occur to me. One is the favourite old illustration which Alison used to employ—the spreading of peritonitis from loop to opposed loop of intestine, without following the peritoneal folds. No doubt this may be considerably accounted for by chemical infection of opposed parts. It is not, however, the less a corpuscular action; it is the poison thrown out by one set of corpuscles which poisons others. A more remarkable set of phenomena are offered by a typical attack of gout beginning in a tendon or its sheath, and making its way, regardless of the course of vessels and nerves, right to the surface, and ending in erythema there. The details by which the transition takes place are unknown; but, by the total disregard to vascular and nervous dispositions, we are taught in a striking manner the possibility of vital actions travelling by a route which can only be governed by corpuscular forces. That being the case, we were comforted in the days of the sceptics of the expectant school, and continued to leech and blister and apply other applications directly over deep-seated affections. Many of us remember how Professor Hughes Bennett denied that leeches over the chest or abdomen could influence affections of the organs within, except in the same way that the same quantity of blood drawn from the arm would act. Yet none of us who have tried it can doubt the enormous benefit which often follows the action of a single leech or of a single blister to inflammation of an organ near by the direct route, but receiving its blood from totally different sources; as, for example, when applied to the temple for deep-seated inflammation of the eye. In the case of the action of blisters on deep parts, it is impossible to account for the benefit by infiltration of cantharidine to the deep part, and an explanation of the effects must be sought in the establishment of a current of action, or rather, what may be called infection of irritation from one corpuscle to another. The immediate chemical irritation acts on the integument. How deeply it extends has not been demonstrated. But the violent action near the surface becomes the excitant of the less violent action in corpuscles underneath; and when one considers how even to reach the muscular wall, tissues almost destitute of capillary supply, and poor in nucleated corpuscles, have to be traversed, one sees that it is not merely when a serous cavity has to be crossed that infection from corpuscle to corpuscle has to be invoked in explanation, and, further, one is led seriously to question if immediate contact of one

corpuscle with another is necessary in order that action may be communicated.

But it is not always the spread of the irritated condition which is relied on in local applications. Warmth and moisture allay irritation, and pretty certainly favour corpuscular growth, proliferation, and the throwing out of fluid. This no doubt partly results from relaxation of vessels under reflex control, but the interference with such reflex action can only consist in the withdrawal of irritation from nerve extremities, and consequent withdrawal of stimulus to vaso-motor nerves. Account for the action as you may, both fomentations and dry heat are relied on to affect deep inflammations; and no one will say that the effects of the two are identical. The evidence as to the effect of wet heat is altogether in favour of its promoting corpuscular growth and accumulation. And I cannot but think it probable that this effect, amongst others, is set up in the lungs by moist heat applied to the surface; and although it is with diffidence, it is also with considerable earnestness, that I would ask practitioners if they are quite certain that those large and comforting poultices so frequently used in inflammatory affections of the lungs may not, when indiscriminately used, be the cause of many deaths, by increasing the outpour of substance into the air-cells. There is one other local remedy I should like to refer to, because it is one of which I formerly had a larger experience in one form than the profession seems usually to allow itself. Iodine applied locally acts in two very different ways. As most frequently used, in tincture or liniment, it acts like other remedies called counter-irritants. It may be questioned if much of it gets deeper than the epidermis, and the action, somewhat destructive, which it excites there, becomes the cause of the deeper effects. Very different is the action of iodine ointment, provided it be applied immediately after it is made. It seems to be too much lost sight of that iodine left in contact with oil causes changes therein, and enters into combination. The chemical fact I have ascertained from Professor Ferguson and Dr. G. G. Henderson. The phenomenon, which may come under the observation of any practitioner who superintends the making of iodine ointment before using it, is that when the ointment is perfectly fresh it has a sienna-brown colour, which gradually changes in a few days to a dark brown with a shade of crimson lake. In the latter condition it is of very little use; but in the fresh state, the free iodine is dissolved in the ointment, and, the cuticle being pervious to oils, the iodine passes freely in, it is to be supposed; at any rate, when

applied copiously on lint retained in position by a bandage, it has a powerful action on grave diseases of bone and cartilage, especially if made to follow a plentiful blistering application of Corrigan's cautery. In this instance it may well be questioned if a certain amount of the iodine does not actually permeate to the diseased part. That can only be ascertained by experiment, and probably might be much more easily determined than the course of many other substances. Let me bring these scattered and too diffuse hints to a close by a remark bearing on the subject of phagocytes, so interesting at present to the profession.

It will be seen, from what I stated earlier, that I have little sympathy with the view that a special set of corpuscles are told off in the economy for getting rid of bacilli. The leucocytes are the young corpuscles as yet unwallled and undifferentiated, fresh from the retiform tissue diffused through the body in mucous membranes, in connection with glands, and in the interior of bones, and from more special organs, such as the lymphatic glands and spleen; and it is in this unwallled condition, when the nutritive functions are at their highest, that corpuscles are best fitted to take up solid particles into their interior, whether as nourishment or to carry them away. But the remark which I wish specially to make is in continuity with one which I made several years ago at a scientific and social meeting presided over by the present President of this Society, to the effect that it was time to consider how far blood-letting might affect the constitution in other ways than by depletion. At that time I pointed out that it was probable that young red-corpuscles were more likely than old to be efficient as oxygen-carriers in the blood, and that one of the effects of blood-letting was to favour the production of new corpuscles. But what I said then with reference to red-corpuscles is probably more important to be recognised with reference to leucocytes. The liberation of these from all the sources in which they are developed would appear to take place rapidly after loss of blood; and it is quite conceivable that much of the benefit which such men as Alison and Bouillaud, allowed to have been both sagacious and observant, believed that they obtained by blood-letting in fevers, was really obtained and to be accounted for in this way. I would therefore conclude, as I began, by pointing out an apparent antagonism between two of the popular beliefs of the day. You believe in the action of white-corpuscles as phagocytes operating to destroy the sources, or at least promoters, of

disease, and you set your faces like a flint against the whole wisdom of the fathers, and will on no account liberate a drop of blood which can be spared, even if by so doing you may bring phagocytes into being.

HIPPOCRATES.

[*A Bibliographical Demonstration in the Library of the Faculty of Physicians and Surgeons of Glasgow, 23rd November, 1891.*]*

By JAMES FINLAYSON, M.D.,

Physician to the Glasgow Western Infirmary, and to the Royal Hospital for Sick Children, Glasgow; Honorary Librarian to the Faculty of Physicians and Surgeons of Glasgow, &c.

VALUE OF HISTORICAL STUDIES.

IN resuming our "Bibliographical Demonstrations" to-night, I wish to take the present opportunity of saying that I have long desired to try this method of directing the attention of some of our students or young graduates to the history of medicine. I believe that the history of our art is not only full of interest to us as students, but that it is of great importance to us as practitioners. To those, especially, who have only recently entered on practice, it seems to me that some knowledge of the history of medicine affords the only means of supplying the place of personal experience, in judging of the ever changing phases of our art. The history of various revolutions in theories and in practice, and the indications thus afforded of the lines on which steady and substantial progress has been made since the earliest times, or, on the other hand, of the pitfalls into which our predecessors have been entrapped, seem to me the only way of securing for the inexperienced any sense of "perspective" in looking at new facts and new ideas as they arise.

But the history of medicine seems never to have been much of a success in the schools of Scotland; even when taught, as it has been in Edinburgh, by a man of the greatest eminence and ability, the success is reported to have been dubious, or at least slight. In England, so far as I

* This report has been written out from memory; it is published here chiefly with the view of illustrating the plan of "bibliographical demonstrations," of which this was the third given by the writer this winter; a fourth, on "Galen," is reported in the *British Medical Journal*, 12th March, 1892, vol. i, p. 573.

know, the results have not been much better, although the requirements of the Royal College of Physicians of London in the examination for its membership have kept the subject more alive there than here.

METHOD OF BIBLIOGRAPHICAL DEMONSTRATIONS.

I have for a long time thought that this subject, like most of our medical subjects, should be approached—if approached at all in the form of lectures—by the practical methods we now adopt in other departments. My own personal experience was that I only began to feel the reality underlying such names as Hippocrates, Galen, Avicenna, Bonetus, or Morgagni, when I was led, during my connection with the medical library in Manchester, to handle the works of the giants of the past. When thus made to realise the substantial character of their contributions, an occasional dip into their writings, if even only to read their title pages, the headings of their chapters, or a short passage on some subject having a special interest at the moment, gave me, from that time, a sense of a certain personal acquaintanceship with the writers, very different from the mere shadowy idea previously gathered from seeing or hearing their names in a book or a lecture. After such a glimpse, one sometimes felt impelled, and certainly more prepared, to gather up from historical or biographical works more detailed information as to the lives and doctrines of those who had left their mark for all time.

In charge of a valuable medical library in this great medical centre, I have often thought of trying how far the method of "bibliographical demonstrations" could be made available in stimulating interest and laying the foundations for future study; but the pressure of practical work, of a varied but always of a more urgent kind, has hitherto prevented me from undertaking the experiment. Nearly two years ago, I obtained permission from the Council of the Faculty to give demonstrations in the Library to any members of the profession I might think of inviting, but I was only able to make a beginning this winter. The slight preliminary experiments already made this month seemed so encouraging that I have now ventured, at this third meeting, to enter upon a demonstration of the Hippocratic writings.

Our meeting here is small, but in my view that is one of the conditions of success in this plan. We wish the numbers to be such that you can all sit around the table on which

the books are placed, see them when demonstrated, and look at them quietly for yourselves after the demonstration is over. I began the demonstrations with old anatomical works containing many curious and attractive illustrations, so as to cultivate this habit of personal examination; in the subject before us to-night, the illustrations must be drawn from selected passages which I will read from the books before you.

The next point of difficulty which had to be faced was the selection of an audience. Our over-pressed students can scarcely be expected to take the trouble of learning about anything which "does not pay" at the examinations, although at my second demonstration this winter, of books bearing on "Physiognomic Diagnosis," to which students were invited, I had a goodly number of them—as many, indeed, as desired. After consideration, it seemed to me that the most suitable audience, for my purpose, was such as I have to-night—an audience selected chiefly from the residents at the various hospitals here, according as they were understood to be interested in such matters, with the addition of any one else who expressed a desire to come. As most of you here have been more or less associated with me as hospital assistants, I felt that whatever deficiencies I showed in carrying through this new enterprise, I would at least receive a sympathetic hearing and a kindly judgment.

PETER LOWE'S TRANSLATION OF THE "PROGNOSTICS."

In this library it may be legitimate to begin a demonstration of the Hippocratic writings by showing you the first translation into English of any portion of them. This was made by Peter Lowe. He published his translation in 1597, and obtained a charter for our Faculty in Glasgow from James VI in 1599. His translation is notable as being the first attempt to render into English, for the use of practitioners, any of the great Hippocratic treatises. But we cannot regard it as a very scholarly translation. Indeed, it appears, from the researches of Dr. Creighton, that his translation of the "Presages" (as he calls the "Prognostics") was made neither from the Greek nor Latin, but from the French version by Canappe, published in Lyons in 1552; this, again, was from the Latin edition of Rabelais, and founded on the text of Copus. The source of Peter Lowe's translation is shown not merely by such things as the headings of the chapters in the "Presages," but by its association with a translation of the "Oath" also; and above

all, by the prefixing of the same "Life" which occurs in Canappe's French translation, but not in Rabelais' edition.* In this "Life," by a curious misprint, "Pereno" occurs in all the four editions of Peter Lowe's translation instead of Zeno (the Eleatic philosopher), who is referred to as a contemporary of Hippocrates.

It is in the PROGNOSTICS that the celebrated passage occurs describing what is known as the "*Facies Hippocratica*." I will read you Peter Lowe's rendering of it in his translation of "*The Booke of the Presages of deuyne Hyppocrates*." I quote from the third edition, but I believe it is the same text as in the first, published in 1597:—

"*How the Physitian or Chyrurgian may presage by signes of the Face, in sicknesse.*—It is requisite to consider and contemplate the Face of the sicke. First to know if it be such as in health, or but a little different: and if it be so, the Mediciner Chirurgical may haue a good presagment and hope of Recoverie. But if it be greatly altered, and changed, as followeth, hee shall esteeme it in perill and danger of death, when the nose and nostrills are extenuated and sharpened by the same maladie, and the eyes hollow, and the temples, viz., the parts betweene the eares and forehead are cleane, and the skinne of the brow is hard, dry, and loose, and the eares cold and shronke, or almost doubled, and all the face appeareth blacke, pale, livide or leaden, and greatly deformed, in respect of that which it was in time of health."

On reading any rendering of this passage, one is at once reminded of the celebrated description in Shakespeare of the death of Falstaff, where Dame Quickly says—

"For after I saw him fumble with the sheets and play with flowers, and smile upon his fingers' ends, I knew there was but one way: for his nose was as sharp as a pen and a' babbled of green fields," &c.—(Henry V, act ii, scene 3.)

The question has arisen as to how Shakespeare could have obtained access to the description of the *Facies Hippocratica*, and it has been suggested that Peter Lowe's English translation may have been available for one who had "small Latin and less Greek." So far as the dates go, they might, indeed, fit in, as Peter Lowe's translation was issued in London in 1597, and "*King Henry V*" was first published in 1600. After a full investigation of the subject, however, Dr. Creighton has

* Some further details on this subject may be found in *Account of the Life and Works of Maister Peter Lowe*, by James Finlayson, M.D. (Glasgow, 1889); also in an article by Dr. Chas. Creighton on "*Falstaff's Deathbed*," in *Blackwood's Magazine*, March, 1889.

come to the conclusion that this translation is *not* the source of Shakespeare's phrases.*

CHRONOLOGY—HIPPOCRATES A REALITY.

I have placed on the board some dates to guide you in your ideas of the time, according to the best authorities, when Hippocrates flourished, adding various dates selected from different countries for the sake of comparison :—

	B.C.
Hippocrates, (about)	460-357
Socrates,	469-399
Zeno, the Eleatic philosopher, born,	488
Plato,	428-389
Aristotle,	384-322
Roman Decemviri created,	451
Virginus killed his daughter,	458
Second return of the Jews under Ezra,	458

But on looking at such a table one is reminded of important preliminary questions which have been raised—viz., Was there such a man? Were not the Hippocratic writings merely a miscellaneous collection, issued under a traditional name?

The first question seems capable of a satisfactory answer in the affirmative. M. Littré, in his valuable edition of Hippocrates, in the ten volumes now before you, has gone into this matter critically in the elaborate introduction contained in the first volume. M. Littré was a learned member of our profession; he is the same of whom you have all heard as the author of this great French dictionary, in four large volumes, which I show you here. Some of you may also have heard of him as an exponent of the positive philosophy of Comte. M. Littré (vol. i, p. 29) quotes a passage from one of the dialogues of Plato (*Protagoras*), where Socrates is represented as saying to one of his auditors, who happened to be called Hippocrates—

“If for example you had thought of going to Hippocrates of Cos, the Asclepiad, and were about to give him your money, and some one had said to you: You are paying money to your namesake Hippocrates, O Hippocrates: tell me, what is he that you give him money? How should you have answered?—

“I should say, he replied, that I give money to him as a physician.—

* See *Blackwood's Magazine*, March, 1889.

"And what will he make of you?"—

"A physician, he said."*—(Jowett's Translation, second edition, vol. i. Oxford, 1875.)

M. Littré contends that this passage from Plato, who lived shortly after the date ascribed to Hippocrates, proves that Hippocrates was a physician; of the Island of Cos; of the family of the Asclepiadæ; that he taught medicine, and received fees for doing so; further, that as the words are put into the mouth of Socrates, these two great men must have been contemporaries. This little glimpse shows you the kind of evidence which can be adduced to prove the veritable existence of Hippocrates and his approximate date. Another passage is quoted by M. Littré (vol. i, p. 72) from Aristotle who, although somewhat later, is still near enough to be an important witness (*Politics*, Lib. vii, Cap. 4), "When we speak of the great Hippocrates we understand not the man, but the physician."

In his elaborate and learned introduction, M. Littré goes into this discussion in great detail, quoting from Plato, Aristotle and others; certain phrases in their works being adduced to show that these ancient authors were familiar with certain portions of the Hippocratic writings.

From the necessity of this accumulation of proof, it must be evident to you that there is no *reliable* "Life" of Hippocrates. Three "lives" are referred to, the most important being one by Soranus, or rather according to Soranus (*Karà Σωρανόν*). This has been repeatedly published, and is appended to the edition by Ermerins, as I show you, both in a Greek and Latin text. There are insuperable difficulties in deciding who this Soranus really was. It seems certain that he was *not* the same as the Ephesian Soranus otherwise well known in medical literature, although this biographer is also said to have been of Ephesus; it has been further supposed that there was also a Soranus of Cos, who explored the records of that island, and whose materials were used for the purpose of this biography.

The portraits of Hippocrates are all without authority. I show you some representations copied from busts or antique gems. I also show you portraits prefixed to certain editions of his works, but as none are authentic, we need not linger on this subject.

* M. Littré quotes another passage from Plato (*PHÆDRUS*) where Hippocrates is spoken of as an individual and as a writer of authority. The passage is quoted also by Dr. Warburton Begbie (*Selections from the Works of*): London, 1882, p. 385.

HIPPOCRATIC WRITINGS: GENUINE AND SPURIOUS.

Although the personality of Hippocrates as a physician and an author is clearly established by the best historical evidence, the authenticity of the various treatises ascribed to him is quite open for discussion. The general consensus of critics points to there being three different groups of the treatises bearing his name.

1. Genuine works, undoubtedly Hippocratic.

2. Spurious works, certainly not written by the great Hippocrates.

3. Dubious works.

Of the spurious and dubious works one or two may have been earlier, but the most of such are regarded as being of later production.

It is quite possible that some of the spurious writings of later date may have been "Hippocratic" in the sense of being written by one of that name, although not by our author, who is distinguished sometimes by the adjective "Magnus,"* to indicate his pre-eminence amongst all those of the same name, and often, indeed usually, by the adjective "Cous," to indicate the place of his birth.

PRE-HIPPOCRATIC WORKS.

The most interesting question as to the authenticity of the writings turns on the date of certain of the works ascribed to Hippocrates being really *before* his time, a subject discussed with great learning by Houdart, Littré, Ermerins, Adams, Greenhill, and others. That there were ancient medical writings *before* Hippocrates may be taken as certain. One of the Hippocratic treatises regarded as undoubtedly genuine by M. Littré (Tome i, p. 320) is that "On Ancient Medicine." His opinion is based on a quotation from the *Phædrus* of Plato, and is supported by an elaborate argument; this argument is not admitted as conclusive by Dr. Adams; but the latter points out, as an evidence of the reality of an ancient medical literature before the time of Hippocrates, "that Xenophon, who was almost contemporary with Hippocrates, puts into the mouth of Socrates, who was certainly nearly of the same age, the saying that there were many medical works then in existence (*Memorab.*, iv)." If we

* See the passage already quoted from Aristotle, where he is called "the great Hippocrates."

accept the treatise "On Ancient Medicine" as really by Hippocrates Magnus, its very title may be taken as implying a pre-existing literature. If this treatise is rejected, we have the testimony of another, universally admitted as written by Hippocrates—viz., "The Regimen in Acute Diseases." In this book the writer begins with the words "Those who composed what are called 'The Cnidian Sentences;'" we have thus clear proof of some ancient literature in medicine available for Hippocrates to profit by and criticise. It would seem as if Cnidos had been a rival school to that of Cos, to which latter Hippocrates belonged; and these "Cnidian Sentences" have been supposed to be the analogue in that school of the "Coan Prenotions" pertaining to Cos. This latter work was long regarded as a production of Hippocrates, but is now supposed by many to be a part of that earlier literature on which our author founded his work.

It could not escape attention that three of the Hippocratic treatises—(1) "The Prognostics," (2) "The Coan Prenotions," and (3) "The Prorrhethics"—were in many ways similar. The first was universally regarded as the most perfect, and so at one time the others were ascribed to subsequent and somewhat inferior authors or imitators. The resemblances are well brought out in tabulations, such as I now show you in M. Houdart's book. A critical comparison shows that both the "Prorrhethics" and the "Prenotions" contain the names, in detail, of individual patients from whose cases some special prognostic is drawn, whereas the "Prognostics" contain no such personal details. It seems pretty clear, therefore, that the "Prognostics," a much more finished production, omitting all personal memoranda, must have followed instead of preceded the other two; and as the "Prognostics" are universally admitted to be by Hippocrates, we have very probably, in these other two, specimens of the work of earlier observers, by whose labours Hippocrates could profit, and in doing so could fairly enough rear for himself such a surpassing reputation as the "Father of Medicine;" for then, as now, acuteness of personal observation and independence of thought were quite compatible with profiting by the labours of others and the experience of the past. I have already read a short extract to you from the "Prognostics," describing the "Facies Hippocratica." This work is undoubtedly one of the greatest and most celebrated of the Hippocratic writings.

APHORISMS.

Another equally famous is the "APHORISMS." I have selected the first and the last aphorisms as specimens. The translations which I propose reading to you are from Dr. Adams' admirable rendering; but I avail myself of two of his alternative translations in the first aphorism, as somewhat more impressive, in my view, than those in his text:—

I. 1. "Life is short, and the art long; the time is urgent; experiment is dangerous, and decision is difficult. The physician must not only be prepared to do what is right himself, but also to make the patient, the attendants, and externals co-operate."

The first clause, familiar to so many, is recognised by comparatively few, even of the cultured, as being in the works of Hippocrates. The first portion of the aphorism has the gravity of the philosopher; the second shows the practical experience of the physician; I am sure you will find as you go on in the profession that all the difference between success and failure often depends on whether the physician possesses this invaluable power of compelling patient, attendants, and even external circumstances to co-operate with him in the proper management of the illness. Mere knowledge and skill often fail for the want of some measure of this power.

The last aphorism is also celebrated, and I read it to you now, although some doubts exist as to whether it has not crept into the first book of the aphorisms from a continuation by a later writer:—

VI. 87. "Those diseases which medicines do not cure, iron (the knife?) cures; those which iron cannot cure, fire cures; and those which fire cannot cure, are to be reckoned wholly incurable."

HIPPOCRATIC OATH.

The Hippocratic "OATH" is so widely known that perhaps it is scarcely necessary to read it; some modification of it was used when graduates in medicine were sworn in at the University here in my time; and even now it survives, to some extent, in the declaration still made by you. It will be better, however, for me to read this short Hippocratic piece in full, so that you may catch its full spirit and meaning. The rendering is by Dr. Adams, whose translations I use here whenever available:—

"I swear by APOLLO the physician and ÆSCULAPIUS and HEALTH [Hygeia] and ALL-HEAL [Panacée] and all the gods and goddesses, that, according to my ability and judgment, I will keep this oath and this stipulation—to reckon him who taught me this art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous.

"I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion.

"With purity and with holiness I will pass my life and practise my art.

"I will not cut persons labouring under the stone, but will leave this to be done by men who are practitioners of this work.

"Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption, and, further, from the seduction of females or males, of freemen and slaves. Whatever, in connection with my professional practice, or not in connection with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret.

"While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times! But should I trespass and violate this oath, may the reverse be my lot!"

There are two points in this "OATH" to which I wish to call your attention. The opening phrase, "I swear by all the gods and goddesses" has been recognised as mentioned by Aristophanes, where one speaker says, "What better oath than that of the brotherhood of Hippocrates?" The other answers, "Well! I swear by all the gods" (Littre, tome i, p. 31*). The other point in connection with the "OATH," to which I direct your attention, is the remarkable passage forbidding those who are thus sworn to cut for the stone. Hippocrates practised various grave surgical operations, and it has been a

* M. Littre departed from this view of the passage while treating of the OATH (see tome ii, p. 48); M. Petrequin, however (*Chirurgie d'Hippocrate*, tome i, Paris, 1877, p. 172), still adheres to this meaning of the passage.

matter of wonder that this one should be forbidden. Some, indeed, have sought to solve the difficulty by suggesting that he does not refer to lithotomy, but to castration.*

It is almost certain that the operation referred to was really lithotomy; the separation of this operation from the ordinary practice of surgery is indicated by the Founder of our Faculty here, for Peter Lowe passes it over in his "Discourse of the Whole Art of Chyrurgerie," which was published while he was in Glasgow in 1612; referring its discussion to his treatise entitled "The Poore Mans Guide." The operation from the time of Hippocrates till very recently was practised by a set of men outside of the profession. In the Burgh Records of our city we have the following suggestive entry:—

"27th March, 1688.—The said day there was ane testificat produced in favor of Duncan Campbell, subscryvit be the haile doctors and most part of the chirurgianes in toune, of his dexteritie and success in cutting of the ston, as also in sounding with great facilitie, and hes given severall proofes therof within this burgh, whilk being taken to the said Magistrats and Counsell their consideration, they nominat and appoynt him to cutt such poor in toune as he shall be desyred be the Magistrats, in place of Evir M'Neil, who is become unfit to doe the same through his infirmitie."—(*Memorabilia of the City of Glasgow*, Glasgow, 1868, p. 258).

QUALIFICATIONS AND FUNCTIONS OF THE PHYSICIAN.

With regard to the necessary conditions for the successful study of medicine, I read you the following short extracts from "THE LAW;" I desire your special attention to the profound wisdom of the last clause:—

"Whoever is to acquire a competent knowledge of medicine ought to be possessed of the following advantages: a natural disposition; instruction; a favourable position for the study; early tuition; love of labour; leisure. First of all, a natural talent is required; for when nature opposes, everything else is vain; but when nature leads the way to what is most excellent, instruction in the art takes place, which the student must try to appropriate to himself by reflection, becoming an early pupil in a place well adapted for instruction. He must also bring to the task a love of labour and perseverance, so that the instruction taking root may bring forth proper and abundant fruits.

* This question is discussed in an elaborate note, at the end of the OATH, by M. Petrequin (*Chirurgie d'Hippocrate*, tome i, Paris, 1877, p. 192); he comes to the conclusion that the OATH refers to lithotomy, and that it was proscribed owing to the disasters following its practice at that time.

“ But inexperience is a bad treasure and a bad fund to those who possess it, whether in opinion or in reality, being devoid of self-reliance and contentedness, and the nurse both of timidity and audacity. For timidity betrays a want of power and audacity a want of skill. There are, indeed, two things, knowledge and opinion, of which the one makes its possessor really to know, the other to be ignorant.”

The following celebrated passage is from the “FIRST BOOK OF THE EPIDEMICS” (ii, 5):—

“The physician must be able to tell the antecedents, know the present, and foretell the future—must meditate these things and have two special objects in view with regard to diseases—namely, to do good or to do no harm. The art consists in three things—the disease, the patient, and the physician. The physician is the servant of the art, and the patient must combat the disease along with the physician.”

Objection has been taken to the instruction that the physician should “do no harm” as being unnecessary and too trivial, but after twenty-three centuries the retention of this clause must be held to be still essential by all who have seen much of practice. In connection with this same spirit, I may refer to what has been called the “HIPPOCRATIC PARADOX.” A thesis by G. A. Langguth, *De Paradoxico Hippocratico* (4to, Wittembergæ, 1754), discusses this paradox at some length as you see. The paradoxical passage referred to is found in the treatise on “ARTICULATIONS” (40), which is regarded as genuine; it occurs in connection with the treatment of injuries to the ears:—

“For it is a good remedy sometimes to apply nothing at all, both to the ear and to many other cases.”

In connection with these same ideas, I have to call your attention to a passage in one of the Hippocratic treatises; although it is considered to be of a later date than our author himself, this is of little importance under the circumstances; he speaks of Herodicus (his own teacher and the inventor of medical gymnastics) as having occasioned the death of not a few patients, affected with fever, while subjecting them to treatment by means of vapour baths and violent exercises instead of rest (Litré, tome v, p. 303).

The passage in which Hippocrates, according to the usual translation, speaks of “nature” as the healer of our diseases has been discussed by Professor Gairdner in one of his essays, and subjected to his fruitful criticism. The meaning of the

phrase νοῦσων φύσις ἰητροί (*Epidem.*, vi, 5) is shown by him to be somewhat different from the general dictum about the "vis medicatrix naturæ." He shows that what Hippocrates alleges is that "OUR NATURES ARE THE PHYSICIANS (or healers) OF OUR DISEASES," and he paraphrases it thus, "that normal function is in every instance to be evoked and supported, and protected, as what is usually the only way open to us for effectually overcoming abnormal function." * This Hippocratic view of our natures being themselves the physicians of our diseases is at present receiving fresh illustrations in the remarkable studies now being pursued regarding the processes which secure "immunity."

ARE ANY DISEASES SACRED OR DIVINE ?

The view taken by Hippocrates of "THE SACRED DISEASE," as epilepsy was called, is most philosophical. The mysterious outbursts of this remarkable disease by which a person, often in perfect health, is suddenly struck down and given over to the most violent convulsions, which may quickly pass off, so that he can resume his usual course in a short time, have suggested in various ages and countries the idea of some special supernatural agency, whether divine or demoniacal. He begins thus :—

"It is thus with regard to the disease called sacred ; it appears to me to be nowise more divine nor more sacred than other diseases, but has a natural cause from which it originates like other affections. Men regard its nature and cause as divine from ignorance and wonder, because it is not at all like to other diseases. And this notion of its divinity is kept up by their inability to comprehend it, and the simplicity of the mode by which it is cured, for men are freed from it by purifications and incantations. But if it is reckoned divine because it is wonderful, instead of one there are many diseases which would be sacred ; for, as I will show, there are others no less wonderful and prodigious, which nobody imagines to be sacred."

In a similar strain, he writes in the treatise "ON AIRS, WATERS, AND PLACES" (22), with regard to some disorder prevailing amongst the Scythians :—

"It appears to me that such affections are just as much divine as all others are, and that no one disease is either more divine or more human than another, but that all are alike divine, for that each has its own nature, and that no one arises without a natural cause."

* W. T. Gairdner, *The Physician as Naturalist* (Glasgow, 1889, p. 260) ; see also Dr. Warburton Begbie, *Selections from the works of* (London, 1882, p. 386).

It has been a great puzzle that, with such a clear statement of his views on the subject, Hippocrates should himself, in his "BOOK OF PROGNOSTICS" (Lib. i), say that we are to ascertain

"Whether there be anything divine in the diseases."

It has been supposed that he may here use the word "divine" in the sense of atmospheric or pestilential, or that he may be adapting himself, for the time, to the popular language.

HIPPOCRATIC AUSCULTATORY SIGNS.

In modern times we are so saturated with physical methods of diagnosis, especially in chest disease, that we can scarcely think of diagnosis without them. Although nearly all these methods have been introduced within this century, there is one, at least, which goes back to ancient times, and is even now termed "Hippocratic succussion." I have marked the passages in Littré's edition so that you may see where this is referred to. In some of the passages it is merely named or alluded to in passing, as a thing well known, but I will render from Littré's translation one passage where the process is described:—

"You will place the patient on a seat which does not move, an assistant will take him by the shoulders, and you will shake him, applying the ear to the chest, so as to recognise on which side the sign occurs" (Littré, tome vii, p. 153).

A very similar passage occurs in tome vii, p. 71. Both of these are from the treatise "DE MORBIS" (Lib. iii and Lib. ii respectively). The fact that this sign may be absent in cases requiring operation is recognised and ascribed to the quantity or density of the pus being too great. The bulging and the pain are then to be taken as guiding to the affected side. (Other passages referring to succussion may be found in Littré's edition, tome v, p. 681, and tome vi, pp. 151 and 309).

The practical importance of succussion seems to have depended specially, in his view, in determining which side to operate on in cases of empyema.

Another passage has been pointed out as referring to auscultatory signs apart from succussion. I will translate for you Littré's rendering of this passage, the exact meaning of which is still involved in considerable obscurity:—

"And if applying the ear against the chest, you listen for a long time, it boils within like vinegar" (*De Morbis*, Lib. ii; Littré, tome vii, p. 95).

What auscultatory sound this was, which was to guide the operator to the side on which the incision should be made, is not clear. That it really was a *sound* which constituted the sign is clear from the context, and amidst various readings M. Littré prefers the word meaning to boil.*

A sound resembling that made by new leather is described in pleurisy (*De Morbis*, ii, 59; Littré, tome vii, p. 93). These and other references to auscultation are given by Dr. Gee in his book on *Auscultation and Percussion* (third edition, London, 1883), p. 100.

CHEYNE-STOKES' BREATHING.

It is not in physical signs, but in general symptoms, that the power of observation, undoubtedly pertaining to the Hippocratic school, comes out most strongly. The "Prognostics" are full of the keenest clinical observation. It is very interesting, and even startling, to read a description of Cheyne-Stokes' Respiration in those old times. This remarkable form of breathing is generally regarded as being a matter of observation only in recent times, noted by the two great clinical observers whose names it bears. But, according to Dr. Warburton Begbie (*Selections from the Works of*, p. 390), the case of Philiscus, in the "FIRST BOOK OF THE EPIDEMICS" (13), as described by Hippocrates, agrees with this type of breathing. It seems to me that Dr. Begbie makes out his case; but I will read the passage in full, from Dr. Adams' translation, so that you may judge for yourselves.

"Philiscus, who lived by the Wall, took to bed on the first day of acute fever; he sweated; towards night was uneasy. On the second day all the symptoms were exacerbated; late in the evening had a proper stool from a small clyster; the night quiet. On the third day, early in the morning and until noon, he appeared to be free from fever; towards evening, acute fever with sweating, thirst, tongue parched; passed black urine; night uncomfortable; no sleep; he was delirious on all subjects. On the fourth, all the symptoms exacerbated; urine black; night more comfortable; urine of a better colour. On the fifth, about midday, had a slight trickling of pure blood from the nose; urine varied in character, having floating in it round bodies, resembling semen, and scattered, but which did not fall to the bottom; a suppository having been applied, some scanty flatulent matters were passed; night uncomfortable, little sleep, talking incoherently; extremities altogether cold, and

* Ζέω : δζω : δζω : δψω.

could not be warmed ; urine black ; slept a little towards day ; loss of speech ; cold sweats ; extremities livid ; about the middle of the sixth day he died. The respiration throughout like that of a person recollecting himself, was rare and large, the spleen was swelled up in a round tumour, the sweats cold throughout, the paroxysms on the even days."

Dr. Adams says in a note—"The modern reader will be struck with the description of the respiration—namely, that the patient seemed like a person who forgot for a time the *besoin de respirer*, and then, as it were, suddenly recollected himself. Such is the meaning of the expression as explained by Galen in his Commentary, and in his work *On Difficulty in Breathing*. By 'rare' is always meant 'few in number.'"

BEST MODERN EDITIONS AND TRANSLATIONS.

In English, we are fortunate in having a most admirable translation by Dr. Francis Adams, who practised his profession in Scotland, in the rural district of Banchory ; while, at the same time, he held his own with the leading scholars of Europe as an authority on the medical writers of antiquity. His book is entitled "The Genuine works of Hippocrates, translated from the Greek, with a Preliminary Discourse and Annotations" (2 vols., London, 1849). This translation contains, of course, the most celebrated treatises ; but, as it is limited to the "Genuine" works, it fails us when reference has to be made to the others ; but some account of all the treatises is contained in the "Preliminary Discourse."

M. Littré's edition is, on the whole, the most convenient for references. It contains the Greek text, a French translation, a collection of various readings, critical notes, and introductions to the whole collection, and also to each individual treatise. It is in 10 volumes of convenient size, and the last volume contains a good index to the whole. Its title runs, "*Œuvres Complètes d'Hippocrate, Traduction Nouvelle avec le Texte Grec en regard, Collationné sur les manuscrits et toutes les éditions*" (tomes i-x, 8vo, Paris, 1839-61).

Another edition of the first value is Ermerins (F. Z.), "*Reliquiæ Hippocratis et Aliorum Medicorum Veterum*" (3 vols., 4to, Trajecti ad Rhenum, 1859-64). This contains a Greek and Latin text with elaborate introductions and notes.

Another edition, although partial in character, must also be mentioned—viz., the French translation by Ch. Daremberg ;

"*Œuvres Choiesies d'Hippocrate Traduites sur les Textes, Manuscrits et Imprimés, Accompagnées d'Arguments, de Notes, et Précédées d'une Introduction*" (seconde édition, 8vo, Paris, 1855). This is of great value as the work of a scholar of eminence. It does not profess to be limited to the "Genuine" works, as Dr. Adams' English translation does. It is enriched with notes of great importance.

OLD EDITIONS OF IMPORTANCE.

Amongst the old editions is the *editio princeps*—the "Aldine"—published in Venice, in folio, in 1526. This has the Greek text. We recently obtained a copy of it for this library. ✓

I show you the edition by Foes (or, in the Latin form of his name, Anutius Foesius), with the Greek text and Latin translation. The volume on the table was published in Geneva in 1657, but the first edition appeared in 1596. The work of Foes is reckoned one of the most valuable for scholars.

The Latin translation by Calvus, Copus, &c., published in Basle, 1526, is one of the earliest and best. The copy on the table may interest some of you as being bound in wood.

The translation by Cornarius, Paris, 1546, is also before you.

Van der Linden, "*Opera Omnia, Grece et Latine*," 2 vols., 8vo, Lugd. Batav., 1665, was long esteemed one of the best.

Albertus de Haller, "*Opera Genuina*," 4 vols., 8vo, Lausannæ, 1769-1771.

Charterius, R., "*Hippocratis et Galeni Opera*," 13 vols., folio, Lutet, Paris, 1679.

Kühn, "*Opera Omnia*," 3 vols. (tom. 21-23, *Medici-Græci*), Lipsiæ, 1825-27.

Nearly all these celebrated editions are before you for inspection.

SPECIAL WORKS OR PARTIAL COLLECTIONS IN THE ORIGINAL OR IN TRANSLATIONS.

Partial collections are extremely numerous; some of them are laid out for your inspection as curiosities. I may call your attention in particular to one in German, by Paracelsus, with some of the aphorisms, published in Augsburg about 1556-1585; and to another, in a Spanish translation, with a Greek text, of selected works, published in Madrid, 3 vols., 1757-81.

I have already spoken of Peter Lowe's translations of the

"Presages," in four editions, London, 1597-1654; for those of you who may wish to compare the "Prognostics" with the "Prorrhethics," there is an English translation of the latter by Moffat, London, 1788.

A very important work on the SURGERY of Hippocrates is the following:—Petrequin, J. E., "*Chirurgie d'Hippocrate*," Greek-French, with introductions and notes, 2 vols., 8vo, Paris, 1877, 1878.

COMMENTARIES AND CRITICAL WORKS.

The most important of the ancient commentaries are those by Galen. These are most extensive, and are in every sense most valuable. I show you 5 thick octavo volumes of Galen's works (about a fourth of the whole), as being taken up with his commentaries on Hippocrates; he discusses the authenticity of the different treatises and their meaning, often adding long disquisitions of his own on the subjects.

I show you a book consisting of a collection of three very ancient lexicons or glossaries for the Hippocratic writings—"Erotiani, Galeni, et Herodoti Glossaria in Hippocratem; access. emendationes Henrici Stephani, &c.; recensuit J. G. F. Franzius" (Lipsiæ, 1780). Galen's Glossary occurs in vol. xix of Kühn's edition of his works. Erotian and Herodotus both lived before the time of Galen—the former in the reign of Nero, the latter about 100 A.D.; Galen himself lived in the reign of Marcus Aurelius.

Allied to these Glossaries, is the celebrated work by Foesius; "*Œconomia Hippocratis, Alphabeti Serie Distincta, in qua Dictionum apud Hippocratem omnium, usus explicatur, velut Lexicon Hippocraticum*" (folio, Francof., 1588).

Of critical works on Hippocrates and the Hippocratic writings, many of the most important have already been mentioned as contained in the introductions to the editions by Littré, Ermerins, Adams, and Petrequin. The editions by Kühn and Charterius may also be mentioned in this connection. In addition to these, we have before us the Article by Dr. Greenhill on Hippocrates, in Smith's "*Dictionary of Greek and Roman Biography*" (vol. ii, London, 1870).

I show you also an important work by Houdart (M. S.): "*Études Historiques et Critiques sur la Vie et la Doctrine d'Hippocrate et sur l'état de la Médecine avant lui*" (seconde édition, Paris, 1840). The first edition of this appeared in 1836, but a preliminary Thesis was published in 1821; the last edition appeared in 1852. He claims to have anticipated

Littre and Ermerins in their theory as to certain of the Hippocratic writings having appeared before the time of Hippocrates, and as to their being utilised by him.

Another important treatise is by Petersen (C.) "*Hippocratis Nomine quæ Circumferuntur Scripta ad Temporis Rationes*" (4to, Hamburgi, 1839).

I bring these books before you, as they seem to me the most important, but there are multitudes of others.

DISCUSSION ON
ACUTE INTESTINAL OBSTRUCTION, WITH SPECIAL
REFERENCE TO TREATMENT,
IN THE

PATHOLOGICAL AND CLINICAL SOCIETY, 14TH DECEMBER, 1891.

(*Continued from p. 181.*)

The President, DR. NEWMAN, in the Chair.

DR. WM. MACEWEN showed a patient—a child aged 9 months—upon whom he had performed abdominal section for intussusception three months previously. The case was referred to in the course of his subsequent remarks.

DR. JAMES FINLAYSON.

Dr. Finlayson said that he would like to know from the surgeons what number of cases they had had of acute obstruction of the intestines in which operation had been successful. He himself did not know personally of any in Glasgow except that of Dr. Macewen's, shown that night. This was the only successful case he had heard of in either of the hospitals with which he was connected. He had, indeed, heard of cases where operation was done, where no mechanical obstruction was found, and where the patient recovered.

From the point of view of the physician, hesitation exists as to the recommending of operation where the actual condition is obscure and prognosis uncertain. He had seen many very bad cases recover, some in which, from what might be called lucky accidents, no operation was done.

He was not opposed to operating where the indications were

clear. In one of the cases of strangulation by a band, shown by Dr. Coats, the patient was under his care fourteen or fifteen years ago, and operation was performed very promptly, and the band divided, but the patient died. He advised operation in a similar case, with a similar result, but the condition found seemed to justify the operation. The actual experience of the operation of opening the abdomen for acute strangulation seemed so very unfavourable that physicians naturally hesitated to recommend such a fatal operation unless the indications were very clear.

PROFESSOR W. T. GAIRDNER.

Dr. Gairdner pointed out that the preparations shown by Dr. Coats were of interest, and might be taken as giving, on the whole, a favourable view of the chances of relief in any particular case from a surgical operation; in other words, it would appear that upon a merely numerical estimate of the physical conditions involved in fatal cases of internal strangulation, a considerable proportion of them are, more or less, removable; and, therefore, that pathological anatomy rather encourages to operate in acute obstruction. This kind of evidence is valuable; but it is not sufficient, *per se*, to guide to right clinical conclusions. On the other hand, the fallacies incidental to large accumulations of cases observed during life, and inferences based on these, are almost insuperable. Any number of successful cases might be gathered out of medical literature; but, as guiding experience, they must be regarded as happy accidents, for the unsuccessful cases are too often not recorded, and a statistical treatment of such results is therefore wholly misleading. A more trustworthy kind of evidence might be obtained if some surgeon with a large collection and adequate notes would give his entire personal experience, in the same way as had been done with regard to ovariectomy, giving at the same time his own statistics, and the details of his procedure.

Dr. Gairdner said that his interest in the questions now being discussed was that of a physician, and that he had therefore come prepared to listen rather than to speak. He had no desire to discourage operations, or in any way to minimise the great results obtained from abdominal surgery; but it was necessary not to lose sight of the fact that a spontaneous cure was possible in some of these cases. He referred to a paper he had written for the third volume of *International Clinics* (October, 1891), now just about to be

issued in this country, as regards cases of acute intestinal obstruction recovering without operation, even after stercoraceous vomiting had been distinctly declared, and an operation in some of the cases resolved upon, but not performed. One of the cases included in Dr. Coats' series (the one of intussusception) was instructive in the other direction. No question of operation was raised, as the woman was moribund on admission; but the obstruction had lasted only four days, and yet the invaginated bowel was already so gangrenous that no operation could have done good; but there was no peritonitis. Had an operation been suggested in this case a little earlier, on the principle that operative interference, to be safe, should be as early as possible, it was just possible it might have succeeded; but would any one have ventured to propose an operation in such a case before stercoraceous vomiting had set in, and while small amounts of faecal matter were still being got away by injection? When considering this case with a view to a clinical lecture, and dealing with the many difficulties of diagnosis, prognosis, and treatment raised by it, he was led to make some enquiries as to the aggregate results of surgical treatment in the Western Infirmary. He was sorry to say he had not been able to discover anything to set against the list of fatal cases recorded by Dr. Coats. Setting aside cases of hernia on the one hand, and cases like lumbar colotomy or artificial anus on the other, it appeared at least doubtful whether a life had been saved in the Western Infirmary by laparotomy in internal strangulation, for, during the seventeen years of its existence, no successful case of operation for acute intestinal obstruction had been brought to his knowledge.

These cases, said Dr. Gairdner in conclusion, are not very easy or pleasant ones to deal with in practice. They not only tax to the very utmost the skill and knowledge of the physician, but give him more care and anxiety than almost any other.

DR. WILLIAM MACEWEN.

Dr. Macewen admitted that cases of intestinal obstruction occurred which recovered without operative interference, and illustrated this remark by referring to a case in which he was consulted in the North of Scotland, where intestinal obstruction had been present for some days. It was due apparently to a tumour in the right renal region pressing on the ascending colon, and was completely relieved after placing the patient under chloroform, and manipulating the tumour for diagnostic purposes. The manipulation had

evidently relieved the ascending colon from the pressure, and cured the patient as far as the intestinal obstruction was concerned.

Dr. Finlayson had referred to what he had considered was a short period to allow a patient suffering from intestinal obstruction to remain before seeking surgical interference, but Dr. Macewen thought that it was a very difficult thing to state in any case a length of time during which the patient would be safe, as he had known gangrene of the bowel to occur within twelve hours of acute strangulation, and the patient to die about fourteen hours after the strangulation occurred. This was in a case of femoral hernia occurring in a young lad, where there was a very tight stricture. It is quite true, on the other hand, that recovery has taken place after the symptoms had lasted for weeks, but one was never sure of what would be the issue.

It had also been remarked by one of the physicians who spoke that the diagnosis between the different forms of intestinal obstruction was so obscure that he had difficulty in deciding what cases would be benefited by a surgical operation, and what cases would be better left alone. Dr. Macewen thought that for the physician the diagnosis of intestinal obstruction was sufficient, and whenever that was made out a surgeon ought to be consulted. A surgeon could clear up the diagnosis in many ways, but especially by an exploratory incision. A couple of fingers in the abdominal cavity would be quite sufficient to put an end to any doubt as to the cause of the obstruction, and where one was in doubt it was surely better to have that cleared up at the earliest possible moment, as one never knew but that the delay would mean the death of the patient.

The surgeons had been asked to give a statement as to their own cases in which operation had been performed for intestinal obstruction. In answer to that, he would give the following brief summary of his cases, with the exception of one or two which had occurred at the earlier part of his surgical career, and of which he had not notes. In doing so, he divided them into groups, and referred—

First, to those of *Acute Septic Peritonitis*, which occurred after the bursting into the peritoneum of a septic abscess in the neighbourhood of the colon or vermiform appendix. There were four cases of this kind which he had operated upon. In these the peritoneal cavity was found to contain a large amount of foul-smelling, thin, purulent discharge; the entire peritoneum was intensely red, that over the intestines covered

with flakes of plastic effusion, in some instances long portions of the bowel being black with grey patches. These patients were evidently the subjects of intense septic poisoning, marked, among other symptoms, by a high pulse-rate; and it was pointed out that here, as in other cases of septic poisoning, the high pulse-rate persists under chloroform. All of these four patients died, and had he been asked at this time last year whether such cases were amenable to surgical treatment, although he believed that they were, he would not have been able to quote a single case of success. The obstruction arose in these cases from the paralyzing effect of the septic poison upon the bowel, although there was also in each of them a very much thickened colon from old-standing colitis.

But within the last year he had had four somewhat similar cases, all of which recovered after operation. In one of them the bowel had ruptured before operation; in a second there were two folds of the small intestine kinked by adhesions which they had formed to the inflamed colon—these adhesions being the cause in that case of the acute intestinal obstruction, the abscess which had formed round about the vermiform appendix having burst into the peritoneum. In another, the vermiform appendix had also been the primary seat of abscess, which likewise had burst into the peritoneum, and here the vermiform appendix was gangrenous and detached.

In all of these four cases the patients had been sent to him by their medical attendants (Dr. Stevens of Renfrew, Dr. Quintin McLennan, Dr. Boothman, and Dr. Peden, who entertained an enlightened view with regard to intestinal obstruction) as soon as obstruction had been diagnosed by them.

With regard to *Strangulation by Bands*, he had had four cases—two formed by Meckel's diverticulum, while one was probably an appendix epiploica. These three recovered after operation; the fourth died, the patient being operated on *in extremis*, a considerable interval having elapsed between the onset of the symptoms and the operation itself. The band was very easily found and divided, the whole operation occupying a very short time. So, from bands there were four cases, three of which recovered.

He had had two cases of laparotomy where the whole abdominal cavity was filled with faecal matter, owing to *Bursting of the Intestine after Gangrene, due to Undetected Strangulated Hernia*. In these cases, after washing out the whole of the abdominal cavity, the extremities of the

bowel were found and fixed externally. One of these cases died, the other recovered. They were both operated on *in extremis*, and the one that recovered was pulseless at the wrist, and so insensible, that the operation was done without chloroform. After she completely recovered, the two ends of the bowel were freed from their adhesions, united together and dropped into the abdominal cavity. This second operation was also recovered from, and the patient is now, some years afterwards, quite well.

Of *Intussusception* there was one case operated on a short time ago, the only case of intussusception which he had had. It was a case of ileo-colic intussusception, the whole colon being likewise telescoped into itself and found on the left side, the finger detecting the mass per rectum. The apex of the intussusception was formed of the ileum, and at some little distance the ileo-cæcal valve was fixed to it, and this was followed by the caput cæcum and vermiform appendix. The patient, a child of 9 months, was in a very collapsed condition when operated upon, and the last part of the intussusceptum was with very great difficulty relieved, several rents having taken place in its peritoneal layer. The patient was shown to the Society, three months after the operation, perfectly well and robust.

In *Tubercular Peritonitis*, which had ultimately assumed somewhat of an acute obstructive form, there were four cases; in two it was found, after an abdominal incision, that nothing could be done. The coils of small intestine were so agglutinated together, and the adhesions were so dense that it was impossible to relieve them, and the wounds were accordingly closed. In a third, in which there was perforation and general peritonitis, a portion of the jejunum was anastomosed with a portion of the ileum very much lower down, the great part of the ileum being consolidated into a ball-like mass. This case recovered as far as the operation was concerned, but her state of extreme weakness continued for some weeks, after which she died. In a fourth case, quite recently operated on in the wards of the Royal Infirmary, having been sent in promptly by Dr. James Dunlop, of Dennistoun, there was quite a series of causes of intestinal obstruction all arising probably from tubercular lesions, as the mesentery was filled with tubercular glands about the size of a bean. First, there was a considerable agglutination of the intestine, some of the adhesions having taken place at the seat of ulceration, the peritoneal layer of the intestine alone preventing perforation, one such portion having given way during operative mani-

pulations, and requiring therefore to be stitched. Then, secondly, there was a rent in the mesentery through which loops of bowel protruded—this looked to be of old standing; and, thirdly, there was a band enclosing two loops of intestine so firmly as to cause acute obstruction. (Since this statement was made, the patient has progressed favourably, the wound has not been looked at, and the bowels are moving freely [seventeenth day], so that in all probability she will make a perfect recovery.) (This patient is now [27th March] perfectly well, four months after operation.)

Volvulus.—He had seen no case of simple volvulus of his own, but referred to a case which he had seen under the care of his colleague, Mr. Clark, in the Royal Infirmary, which had recovered from the first operation, though he died a year after from a recurrence of the disease.

Compression by Tumours.—With regard to cases of acute intestinal obstruction, due to pressure by tumours, he had two at least due to compression of the colon, and one due to a loop of small intestine being caught between the tumour and the brim of the pelvis. Two of these cases were sent in as cases of acute intestinal obstruction, the tumour, however, in each case being easily diagnosed. In another case the sigmoid flexure of the colon was surrounded by a mass which proved to be an extra-uterine pregnancy with rupture of the Fallopian tube. Each of these three cases was operated on and recovered. One case of ovarian tumour, complicated by a sarcomatous tumour of the ileo-cæcal region and by acute suppurative peritonitis, the latter probably set up by aspirating the tumour with a septic instrument, was operated on *in extremis*, and died.

Injury.—Several cases of acute intestinal obstruction from injury which were not operated upon ultimately recovered; another, where the symptoms were so acute and severe that an operation was performed, and where several folds of the bowel were found agglutinated by flakes of lymph and easily separated, made a good recovery.

Gunshot Wound.—Recovery also took place after operation in one case of acute intestinal obstruction occurring after gunshot wound inflicted fifty-six hours previously. The bullet had taken away a segment of the bowel which had then kinked, an abscess being formed between the folds of bowel and a layer of omentum which had become adherent, beautifully guarding the general cavity of the peritoneum from the enclosed pus.

Of 25 cases operated on, 9 died and 16 recovered.

Dr. Macewen wished it to be understood that his statements referred merely to cases with more or less acuteness, and did not include those of chronic obstruction, or those in which colotomy had been performed.

EXTRA MEETING I.—21ST DECEMBER, 1891.

CONTINUED DISCUSSION ON ACUTE INTESTINAL OBSTRUCTION.

DR. ALEX. ROBERTSON.

Dr. Alex. Robertson said that the discussion of the previous evening had taken very much the form of considering the question of the propriety of surgical operations in cases of acute intestinal obstruction. He did not think there had been, perhaps, any reference at all made to any other treatment. He need hardly say that the subject, being the treatment of intestinal obstruction, included a great deal more. There were cases treated more appropriately by ordinary medical measures. Cases should, therefore, be considered in regard to the nature of the obstruction and the acuteness of the symptoms. He had had a case illustrative of that, a man having been twice under his care with very acute symptoms on both occasions, but cured on each occasion by inversion of the patient and throwing up a large quantity of warm water through a long tube. This had been followed by action of the bowels and relief from the symptoms. He had had another case in the Infirmary in which there were acute symptoms, and in which the diagnosis pointed to fæcal impaction. Massage and other treatment had obtained relief. On the other hand, there were cases in which the symptoms were so acute that there was no question of any treatment other than surgical. Such a case was that of the child shown by Dr. Macewen, in which not only there were the acute symptoms, but in which the intussuscepted portion of bowel was felt *per rectum*. In such a case there was the propriety and need of immediate operation without delay even for an hour. Contrasted with those urgent cases there were those (such as he had first mentioned) in which the symptoms were relatively milder, and in which injections of water or of some gas might be successful, and ought first to be tried. There was also a class in which, though medical

measures should be first employed, there was the suggestion from the onset that surgical treatment might be required. Such cases were those in which one thought from the history that a band or aperture in the mesentery must be present. Where there was a history of peritonitis, and the symptoms suggested the presence of a band, he thought that after having tried medical measures for a short time one should proceed to surgical interference without waiting long. In the majority of cases, even though the presence of decided obstruction were diagnosed, it was right and proper not to take surgical steps at once, but to try others, including washing out of the stomach. He had thought that they would have heard from some of the surgeons of trials of Mr. Jonathan Hutchinson's treatment by abdominal taxis. He thought it was rather risky, but would be glad to hear anyone's personal experience of it. He would compare the treatment of internal strangulation with that of external hernia; in the latter one tried taxis and similar measures first, and failing them proceeded to operation; so, in the former, one should, with some exceptions such as were indicated, try medical measures first, and afterwards, without waiting too long, go on to surgical operation. With regard to surgical operation, he was surprised at the hesitancy which both Dr. Gairdner and Dr. Finlayson showed in regard to any operation. Their experience seemed to have left them in doubt about trying any, so many cases having died.

Dr. Finlayson.—All the cases they had ever seen operated on had died.

Dr. Robertson thought they might have founded too much on the surgery of the past. A new period of surgery had now been entered upon, and when one considered the freedom with which the abdomen could be opened and made the seat of operation in gynaecological cases, and in cases of peritonitis, and in such cases as had been seen in Dr. Macewen's demonstration in the Royal Infirmary, how could one hesitate to open the abdomen when it seemed likely that there was, for example, a band of lymph encircling the bowel and perhaps causing death? He had had a case of a boy of 13 suffering from obstruction, which had not been relieved by ordinary measures. The surgeon, who was called in, at first demurred to operate, but did operate after some days, and easily relieved a strangulation of the bowel caused by a band of lymph, but the boy died of the effects of the continuance of the strangulation. In other cases the friends refused sanction.

Recent observations, Dr. Robertson said, had rendered it much easier now than formerly to get at the seat of obstruction, the portion of bowel below the obstruction falling down into the pelvis, undilated and flaccid. With the qualifications he had indicated, he had no hesitation in recommending operation.

PROFESSOR GEORGE BUCHANAN.

Professor George Buchanan thought it would have been better if the subject for discussion had been named—"The Treatment of Cases which presented Symptoms of Acute Intestinal Obstruction." If they considered only cases in which there was absolute intestinal obstruction, they narrowed the subject very much. There were cases in which any one would say at first from the symptoms, that there was acute intestinal obstruction—there was pain, there was an approach to collapse, there was vomiting coming to be stercoraceous, there was constipation, though that could not always be considered of importance; but yet, when one was brought to such cases there must be discussed not only the possibility of acute intestinal obstruction, but also the possibility of there being impaction from atony of the gut, or of there being acrid peritonitis.

His experience of cases presenting those symptoms went over a number of years, and he confessed that latterly his desire to operate had become greater—just because, as Dr. Robertson had said, abdominal surgery was so different now from formerly. So far as laparotomy was concerned—*e.g.*, for the removal of a tumour—given a patient otherwise healthy, few would have hesitation now in performing that operation; but when there were symptoms of intestinal obstruction, specially when there was acute peritonitis, it came to be a very different thing indeed. The whole matter lay in the diagnosis. He did not think that statistics, except perhaps such as extended over a very long time and over very many cases, would help very much, for all of them who had operated for some time knew what it was to have "runs" of successful or of unsuccessful cases with any operation, making it very difficult to judge from a "run" of fortunate cases.

Speaking from memory, he thought his own experience in cases with symptoms of acute intestinal obstruction was as follows:—Of the number of cases which he had been called to see with abdominal obstruction (independent of rectal or other tumours that could be recognised), he thought that

more had recovered than had died. This was apart from cases that had been operated on. He remembered one gentleman who had had local pain, faint pulse, vomiting (he thought stercoraceous), and in whose case he had determined that they must then operate. There was delay to admit of a consultation; and when Dr. Buchanan went in the afternoon with his instruments, he found that the bowels had moved and the patient was relieved. With regard to treatment (short of operation), he believed in opium (subcutaneous morphia) and warm water injections. All the cases he had seen recover had had that treatment; whether it had had anything to do with the recovery or not he did not know, but it relieved pain at any rate.

Another symptom which he had not mentioned, but which made operation very difficult, was distension. He remembered a case in which this symptom was present among others. He punctured with the long slender trocar repeatedly, and finally there was evacuation of the bowels.

With regard to operation, during the time he had been a hospital surgeon he had never seen a (hospital) case in which operation was performed, but he remembered some cases sent over from the medical wards for operation in which relief took place apart from it; in others there was collapse and death before operation could be thought of. He had only performed abdominal section in cases with symptoms of acute obstruction three times outside of hospital; two of the patients died; the third recovered, but it was the most extraordinary of the three. The first was the case of a young lady seen in consultation with Dr. Leishman, whose symptoms had lasted for forty-eight hours, and included stercoraceous vomiting and collapse; at the operation the bowels were not distended, and there was nothing discovered to explain the symptoms. The second case was that of a gentleman who in the course of the day had had riding exercise, and in the afternoon had taken a hearty meal; in the evening he began to shiver and to feel extreme abdominal pain. Next morning Dr. Buchanan found that there were symptoms of intestinal obstruction, and that it was clearly a case for abdominal section, but there was distension and also generalised abdominal pain in addition to the local pain of the previous evening. He operated and found the obstruction due to a band which was easily divided by the finger. The patient died of peritonitis, whose onset before the operation was indicated by the generalised pain. The third (the successful) case was that of a domestic servant who had been taken ill after a late supper, on the day before

Dr. Buchanan saw her. She had stercoraceous vomiting, was almost pulseless, and was too ill to complain of any pain. His impression was that nothing definite could be discovered, and operated only at the urgent request of her relations. He found acrid peritonitis accompanied by effusion, and that within forty-eight hours of the onset of her illness; there was nearly a pint of whey-like fluid, so acrid, that his hands smarted every time he introduced them into the abdomen. He searched for all the forms of obscure hernia, but could find nothing of the kind. He washed out the abdomen with diluted Condy's fluid. The woman was now the mother of a large family.

The result of his experience was that he had the feeling that, if one could diagnose or partially diagnose a case in such a way as to believe that there was some real obstruction, there should be no delay. The danger lay in delay, and he would operate within as small a number of hours as possible before peritonitis ensued.

He agreed with Dr. Robertson that one should study the symptoms, and endeavour to find out the actual state of the intestinal canal; but if that could not be discovered, he would be inclined to make an exploratory incision at a comparatively early stage of the symptoms, if the onset were rapid.

DR. HECTOR C. CAMERON.

Dr. Hector C. Cameron said the establishment of abdominal section as a successful means of treating ovarian and other abdominal tumours undoubtedly led to the hope, some ten or fifteen years ago, of its employment also as a routine practice in cases of intestinal obstruction. The success of ovariectomy led to the feeling, first, that it involved little or no danger, under any circumstances, to open the abdomen, and, secondly, the belief prevailed that all cases of intestinal obstruction in which medical treatment had been tried for some days without effect, and in which vomiting was a continuous feature, *must* die unless abdominal section were performed. Now both of these beliefs must be accepted with much qualification. Those who compare the risks of section in an ordinary case of ovariectomy with a similar procedure for intestinal obstruction, are dealing with matters not fairly comparable. If a large tumour be removed from the abdomen, not only can the wound be stitched together without the slightest tension, but, so lax and redundant are the abdominal walls, that one side of the wound may be

made widely to overlap the other. On completion of the operation everyone knows the remarkable appearance of concavity and emptiness which the abdomen presents, the ridges of the iliac and pubic bones, with the intervening ligaments, towering high above the general surface of the abdomen; and there is no better or more reassuring sign of steady progress towards recovery than the maintenance, more or less, of this concave condition. How different is the other case. The abdomen in which intestinal obstruction exists is always convex and often tightly distended, and, if free section of its walls be made, there must always be experienced, even when the obstruction has been satisfactorily remedied, great difficulty in packing back and returning the distended intestines removed from the abdomen during the operation. This, in most cases, will be accomplished after much handling of the viscera, and the closure of the wound will involve great tension on the stitches. Suppose, for the sake of argument, two such cases operated on at the same time and placed side by side, and everyone will admit how heavily handicapped is the second of them in the race towards recovery. Indeed, it begins at a point to which the first reaches only after it is recognised to be going seriously wrong; and the fate of such a case must always be more uncertain than that of an ordinary ovariectomy, even when the immediate object of the operation has been satisfactorily accomplished. For these reasons it is not fair to state that the opening of the abdomen in itself is in all cases an equally innocent procedure, or to compare a case of section of an abdomen with healthy bowels, which will be left lax and empty, with another undertaken during acute distension and at the acme of a great constitutional disturbance. The effect of the belief, however, which prevailed strongly a few years ago, that all patients should, without further parley, be handed over to the surgeons when, after an interval, medicine had failed, was well illustrated by a case sent to the Western Infirmary for the purpose of having abdominal section performed. It was that of a strong young man who had been ill with what was called obstruction of the bowels of a week's duration. A great variety of purgatives had been administered, and enemata had been used without effect. All the necessary preparations having been made, I was hurriedly summoned to perform the operation. On examination, I found the abdomen distended and tympanitic, with some tenderness on pressure. Vomiting had been pretty frequent, but far from constant, during his week's illness. He had no aspect of collapse, but

was flushed and feverish, the temperature being high and the pulse of good strength. No operation was undertaken, and Dr. Tennent was asked the next morning to see him, and after this consultation he was removed to a side-room of Dr. Tennent's ward for observation and treatment. His case developed into one of severe and typical typhoid fever, from which he made a good recovery. Nothing could better illustrate how strong was then the desire to give every case the chance of *early* operation, before the strength, as it was said, had begun to fail. The pendulum of opinion has now swung back, and a more discriminating practice is the result.

The other belief referred to—viz., that cases of obstruction marked by persistent vomiting, and not yielding, after an interval, to medical treatment, must go on to a fatal issue—is equally erroneous. One distinguished physician has endeavoured to supply us with a sure indication of the point at which recovery, without operative interference, becomes absolutely and certainly hopeless, that point being, in his opinion, the supervention of stercoraceous vomiting. But this statement must have been contradicted by the experience of many present. I might illustrate this by detailing not one but many cases in which I have seen recovery take place after undoubted and even copious stercoraceous vomiting, but I will not detain the Society by a recital of them, the more so as I lately communicated one or two of the more striking of them to Professor Gairdner, who has given short details of them in a clinical lecture on this subject published by him in a recent number of *International Clinics*. There is certainly one point in the history of certain more or less acute cases which may lead us without long hesitation to determine on operation, and that has already been mentioned, as a point of first importance, by Dr. Robertson. I would also put it in the fore-front. I refer to the history, in the case, of a former peritonitis, whether idiopathic or the result of former accident, abdominal operation, or parturition. I remember some years ago being asked by a military surgeon in charge of the old Gallowgate Barracks to see a soldier with him who had been suffering for some days with acute obstruction of the bowels. I found him moribund—pulseless and with cold extremities—and he died in the course of a few hours. It was discovered from the "health sheet" of this soldier that, when in India a year or two previously, he had been kicked in the abdomen during a drunken brawl, and upon this injury a very serious illness followed, with vomiting and abdominal distension. Such a

history, had I seen this soldier earlier in his fatal attack, might have in itself warranted me in operating at once. The chances are considerable in every such case that the former injury and peritonitis have produced conditions leading to an internal strangulation, probably of a remedial character. A *post-mortem* examination of this soldier's body was made by the late Dr. Foulis, and the specimen (to be seen still in the Royal Infirmary Museum) showed that the mesentery had been torn away at one point from its attachment to the bowel, and through a round hole thus produced there a loop of gut had passed, been strangulated, and rendered gangrenous. No more readily remediable case of internal strangulation could be imagined, if operated on sufficiently early. Again, I have known of a lady who had made a satisfactory recovery from ovariectomy, and who suffered from the symptoms of acute intestinal obstruction some months afterwards. Such a case, like the last, belongs to a class in which the surgeon's duty is clearer, and admits of less doubt and hesitancy than in any other; nothing is more likely than that some band or adhesion may, in such a case, account for the symptoms.

The history of recurrent obstruction is one which often gives rise to considerable difficulty of diagnosis. I have often been asked to consider the question of operation in such cases, and have generally found the opinion prevail with those in attendance that the obstruction must, in all probability, be one remediable by surgical interference since, on a former occasion, it has remedied itself spontaneously. But such a view is by no means always correct. Nor in saying this do I refer to such cases as recurrent appendicitis, but to real intestinal obstruction. In recurrent appendicitis I fancy there can be no two opinions as to the propriety of operation, unless it be strongly contra-indicated in some particular case. But real obstruction, with distension, pain and vomiting, may come and go, even when due to such a definite mechanical cause as a malignant stricture. The more solid parts of the *fæces* accumulate behind the stricture, and become impacted there, silting up the narrow aperture just as sand or gravel may close the grating over a drain. Relief may take place by this accumulation falling out of its position in the movements of the bowel, by changes in the position of the body, or perhaps by the contractions of the abdominal muscles during vomiting. The symptoms of obstruction will then pass off, until a like accumulation takes place again, it may be months afterwards. I have been present at more than one *post-mortem* examination

of patients who had died after such recurrent obstruction, and where the cause of death was found to be a tight malignant stricture. But the most striking case which I remember of this sort was one which occurred in Professor Charteris' ward, in the Royal Infirmary, about fifteen years ago. It was that of a man somewhat past middle life. There had been no motion for three weeks, the abdomen was greatly distended and vomiting very constant. He had, on a former occasion, suffered from a similar, though much less severe illness. At a consultation it was agreed that operation was advisable. On performing section I found, in the descending colon, a hard lump, which all were agreed was a malignant tumour; and the man appearing *in extremis*, it was thought well to return the parts without interference and close the wound. On going to the hospital next day, I heard that shortly after our operation the obstruction had yielded; several very copious stools and much flatus had been voided, and the abdomen had fallen almost to its natural size. Though very weak, the patient expressed himself as greatly relieved, and so hopeful was the change in his condition that the opinion was hazarded that the hard tumour which we had supposed to be a carcinoma had, perhaps, been a mass of hardened fæces, which our manipulation had disturbed and started onwards. The patient continued to sink, and died in 48 hours. At the *post-mortem* examination the tumour was easily found. It had strictured the gut so that the point of the little finger could just be squeezed through it. I have no doubt that the complete obstruction occurred from the collection of a quantity of semi-solid fæces at the back of it. On my grasping the tumour and pulling it forward this would fall out of position, and on being replaced the gut was left sufficiently pervious to admit of a free passage of fluid fæces and flatus imprisoned above. Another likely occasional cause of spontaneous relief of obstruction in malignant disease is the occurrence, from time to time, of the opening up of the stricture by ulceration and sloughing. We are all familiar with this in the case of cancer of the rectum.

Dr. Cameron further discussed the operation of intestinal puncture with cannula and trocar as a means of relief, and sometimes even of cure in certain cases; and also referred to the propriety, in cases which appeared unlikely to bear a severe or prolonged operation, of making an enterostomy or colostomy in the hope of an immediate rescue of the patient, leaving the search for the cause of the obstruction to a future occasion, if then it was thought desirable.

DR. G. T. BEATSON.

Dr. Beatson would have preferred on the billet the term "internal strangulation" for "acute intestinal obstruction," because he thought that among such cases there were two large classes—(1) those in which there is mechanical obstruction as from a growth, and (2) those in which internal strangulation takes place from a band or from an aperture in the mesentery or similar reason. As regards those internal strangulations, he admitted that the whole difficulty was the difficulty of diagnosis. He had himself been sent for several times to come to the Western Infirmary to open the abdomen in obstruction of the bowels, and he must say that no class of cases weighed more upon his mind, the difficulty being to decide whether there is true obstruction or peritonitis, and, if obstruction, whether operation is to be recommended or not. In cases of internal strangulation the danger was not so much the difficulty from the obstruction to the bowel as the fact that, during the time of the strangulation, there had been an interference with the circulation, leading to changes in the condition of the strangulated part of the bowel.

He could not agree altogether with Dr. Cameron in his description of the operation for relief of internal strangulation when he spoke of being afraid to open the abdomen because of the distension. His experience had been that the course was so acute that there was not this distension. He remembered a case which illustrated this. The patient, a boy, had been well on the Saturday; on the Sunday he awakened at 5 A.M., with abdominal pain and a frequent desire to go to stool, but he did not appear to his parents very ill. On the Tuesday Dr. Beatson saw him for the first time, and found him dying, with stercoraceous vomiting and other signs of internal strangulation, but without any distension of the abdomen. He did die on the Wednesday of this acute intestinal obstruction, from, probably, some band or twist. No operation was performed. When seen first it was too late for operation, as probably by that time changes had taken place in the condition of the bowel. If he had the case over again, and saw it early, he would open the abdomen, and feel confidence in doing so.

Dr. Cameron said he supposed Dr. Beatson thought the absence of distension in that case exceptional.

Dr. Beatson replied, No. He thought that in acute internal strangulation non-distension was the rule. Cases with great

distension were cases in which there was some long-standing stricture—something in the large bowel. It was in such cases that they had a formidable condition if they opened the abdomen, and in such cases it was the wiser plan to perform Nélaton's operation of right inguinal colotomy.

Dr. Newman—Before relieving the strangulation?

Dr. Beatson replied that there was not so much a strangulation as an obstruction from stricture in these cases. A case in point was one from which the specimen had been shown last evening by Dr. Coats, and in which distension had been relieved by right inguinal colotomy. In such cases one had to consider the condition of the patients: if they had been without food for some time and had been absorbing poisonous material, they were in an unfavourable state for a serious operation, and it was best to begin with Nélaton's, and have abdominal section afterwards if necessary.

His feeling was that at present the question of dealing with those cases of intestinal obstruction stood thus: if they could be certain that there was internal strangulation, and they saw the case early, before such changes had taken place in the bowel as must follow constriction from a band, their duty was to operate, but the essential thing for the surgeon was to be certain about his diagnosis. He thought it an unfortunate thing that there was so much difference of opinion as to whether the cases should come under the province of the physician or that of the surgeon. Heretofore they had been under the physician, and he called in the surgeon only when his medical measures failed, and thus the surgeon had not the power of perfecting himself in his diagnosis as he ought.

DR. W. J. FLEMING.

Dr. Fleming had operated in five or six cases of acute obstruction, and in all those cases except one the *post-mortem* had showed that no operation would have done good. In the other case there was strangulation from a band, but that was very deep in the pelvis, and was not discovered at the operation, which had to be hurried on account of the patient's exhausted condition. This case also ended fatally, and the nature of it was demonstrated *post-mortem*. On the other hand, he had succeeded in a much larger number of cases in getting recovery, with measures such as Prof. George Buchanan had described, and the more he had to do with those cases, unless they could be sure that there was a local condition that

could be relieved—*i. e.*, an internal hernia, he had come to think the more strongly that the less they operated the better.

He took an intermediate position between Dr. Cameron and Dr. Beatson as regards distension. He had had some trouble from it, but not so much as Dr. Cameron had said. In one or two cases he had had to tap the bowel before he could replace it, and he considered that there was nothing more against doing that when the bowel was exposed than in doing it through the abdominal wall.

Dr. Cameron—You have the gas which escapes.

Dr. Fleming, continuing, said that in one or two cases he had relieved the obstruction by copious *enemata* administered *under chloroform*, thus obtaining relaxation of the abdominal muscles, and of everything else. He was convinced that this manœuvre should be resorted to in all cases, and considered it analogous to the use of chloroform when employing taxis for external hernia.

DR. R. M. BUCHANAN.

Dr. R. M. Buchanan thought there were in the pathology of acute intestinal obstruction some conditions which would probably be found to afford an explanation (1) of those symptoms embraced by the term “shock” or “collapse,” (2) of the rapid onset of these symptoms in many cases, and (3) of the actual cause of death. He wished it to be distinctly understood that he spoke of cases only in which there was strangulation without rupture. Such cases coming to *post-mortem* examination show, as a rule, a portion of intestine intensely altered through strangulation, lying in the abdominal cavity, the cause of death appearing to be more directly attributable to the presence of the strangulated mass than to peritonitis or operative interference. It seemed to him that the tendency to a rapidly fatal issue in certain cases was related to the completeness of the strangulation from the outset, and to the presence of favourable conditions for the rapid absorption of poisonous substances produced in the strangulated part.

It is presumed that the strangulated portion of intestine has its circulation brought to a standstill, and that the further changes which take place in it are brought about by the activity of microbes. The intestine commonly contains various species of microbes, none of which is capable of producing disease under the ordinary conditions of health. Two of the species, however, are known to be extremely

powerful pathogenic agents when the tissues offer the peculiar conditions required for their growth. In the first place, we have the *bacillus of malignant œdema*, generally to be found in the intestinal contents, but capable only of giving rise to disease in the body under conditions implying the absence of oxygen in a free state. The presumption is, therefore, very strong that this organism will find in a portion of intestine which becomes strangulated almost ideal conditions for rapid growth, as the obstruction of the vessels cuts off the supply of oxygen by the blood. In the second place, we have the *bacterium coli commune*, which is both aërobic and anaërobic (i.e., it can grow in the presence or absence of free oxygen). This bacterium is pathogenic in the lower animals, and is also found associated with some morbid processes in man. It is extremely likely to develop within the strangulated intestine, and that the powerful poison which it is capable of producing will be rendered still more powerful by anaërobiosis (as is seen in the case of the *bacillus of cholera*, for example).

The absorption of poisonous products evolved by one or other of these organisms would sufficiently account for the rapid progress of a case towards a fatal issue, and if actual demonstration made it a matter of certainty that these or other bacteria played this important part in acute intestinal obstruction, it would greatly elucidate the very difficult question of operative interference, and tend to place it upon a rational basis. He thought there was a tendency to over-estimate the risks of operation, but the conviction had forced itself upon him, and was strengthened by the extremely probable existence of conditions such as he had mentioned, that there was far greater risk to the patient from the strangulation—a risk that only a small minority of cases survived. It also appeared to him that the unsatisfactory results of operation hitherto had been due largely to the fact that it was delayed till there was already poisoning of the system, or that the relieved intestine was unable to recover itself.

Dr. Coats had a word or two to say about what had fallen from *Dr. R. M. Buchanan*. *Dr. Buchanan's* idea was new to him, but it commended itself strongly to his mind. The *bacillus of malignant œdema* was abundant in the intestine during life, as was evident from the rapidity of its growth throughout the body after death. This microbe, in developing, evolves gas, and it is quite common to find *post-mortem* the microbe and its gas in such distant parts even as the brain.

The kidneys are sometimes swollen up and disintegrated by the evolution of gas, especially in fat persons, where the temperature of the body is well retained after death. If the bacillus of malignant œdema were introduced into the muscles of an animal where it would not obtain sufficient oxygen to prevent its growth, it would very soon kill the animal. If they had a strangulated hernia, the circulation was cut off, and then they had the bacillus of malignant œdema under conditions where it was liable to grow, and therefore under those circumstances he thought it was very likely, as Dr. R. M. Buchanan had said, that growth of that and other anaërobic organisms did take place, and that the poisons thus evolved had a great deal to do with the serious symptoms which so quickly develop. Further, he did not think that the bowel required to be gangrenous for the growth of the bacillus of malignant œdema—there must only be an absence of oxygen; and at several of their *post-mortems*, in which they found that relief of the strangulation had not saved the patient (*e.g.*, in a case mentioned by Dr. Finlayson), the bowel was not gangrenous.

Dr. Newman had seen cases of "cold-water poisoning" in which enormous distension of the abdomen and swelling up of the legs took place soon after death. He asked if Dr. Coats thought it likely that in these cases the organism of malignant œdema had developed.

Dr. Coats replied that quantities of cold water, when swallowed, were known to produce spasm of the arteries, and thus the development of anaërobic microbes might be explained.

DR. DAVID NEWMAN.

The President, in closing the discussion, remarked that as far as he had observed, two expressions of opinion had been clearly brought out; on the one hand, there were those who considered that a spontaneous cure was likely to occur in a considerable number of cases of acute intestinal obstruction, and they therefore advocated delay in adopting operative treatment; while, on the other hand, others recommended early surgical interference as the best method of treatment in such cases. In his own experience in the treatment of internal strangulation, he was disposed to operate early, and he thoroughly believed in the opinions advocated by Dr. William Macewen. Dr. Macewen's results had proved his opinions to be correct. A surgeon, in treating a case of acute intestinal obstruction, must never endeavour to perform a classical

operation—what he has to do is to treat it according to the circumstances of the individual case. If the patient is in a good condition, he should search for the obstruction by making an incision large enough to admit the finger through the peritoneum, but if he fail to find the obstruction he should either short-circuit the bowel by Dr. Senn's method or perform enterostomy. The intestine should never be turned out of the abdomen; if it is greatly distended, the intestine should be stitched to the abdominal wall and opened, its contents allowed to escape, and after some days the abdomen may be opened, and the nature of the obstruction discovered and treated according to circumstances. Dr. Newman stated that, from pathological experience, he had been long ago convinced that a preliminary enterostomy was in many cases necessary before any endeavour could be made to relieve the strangulation with any hope of success. In many cases a prolonged operation is out of the question, and even the administration of an anæsthetic is forbidden; in such cases, if the bowel has not already ruptured into the abdomen, the sooner the surgeon relieves the tension by performing a rapid enterostomy the better; then wash out the bowel and wait. He did not see that any distinction should be made, at least as far as treatment is concerned, between external and internal acute strangulations of the bowel. The same rule should apply to both. What the surgeon must enforce is the necessity for early operation. No one can deny the value of experience in perfecting our methods of diagnosis and in suggesting new plans of operating and improvements in *technique*, but what is of much higher value is when experience teaches that rapidity of thought and promptitude of action which is so necessary in such cases. Nothing will make up for the precious time lost in trying to complete a diagnosis before operating. Why not complete the diagnosis by operating?

Dr. Newman considered that Dr. H. C. Cameron had been hardly fair in contrasting the results now obtained in ovariectomy with those observed in operations for acute intestinal obstruction. The former operation has passed through its vicissitudes; at one time the mortality was high and ovariectomy was condemned, just as now the latter operation is depreciated by many, and for the same reason. When ovariectomy was performed only in the advanced stages of disease the mortality was high; but, if early operation has conduced to good results in slowly progressing ovarian disease, how much more is it demanded in such a rapidly fatal malady as acute intestinal obstruction, in which surgery ought to be the

first resource, not the last. The surgeon should have the control of such from the very beginning, for it is to surgery alone we can look for cure.

He thought that the Society was to be congratulated on the discussion, and on the way in which it had brought out the opinions of the physicians and surgeons of Glasgow on the subject of the treatment of acute intestinal obstruction.

CURRENT TOPICS.

THE VENTILATION OF BYRES.—An important Memorandum on this subject has just been issued by the Medical Officer of Health for Glasgow. There can be no doubt that if we are to have any chance of checking one of the most prolific sources of tuberculosis, we must attend to the healthy housing of our dairy cattle—especially in our large cities where the unfortunate animals from one year's end to the other are practically never out of the stalls. Dr. Russell shows the existing law upon this subject is unsatisfactory, and that in Glasgow we allow the same number of cubic feet for a cow as for a man—viz., 400 cubic feet. Professor M'Fadyean has shown that a cow needs 1,200 cubic feet. It is then shown that, as regards the ventilation of byres, Glasgow is far behind many other towns; and "in Scotland only the little town of Kilmarnock permits 400 cubic feet, but there only in existing byres." Many Scottish towns, such as Dundee, Aberdeen, and Paisley, require 800 cubic feet; that Glasgow only requires 400 cubic feet is certainly "much more than a local misfortune." The following paragraphs from the Memorandum will give an idea of the grievance and its remedy:—

"The existing 'Rules and Regulations for the proper sanitary condition of Cattle-sheds, Cow-sheds, and Byres' within the Royal Burgh of Glasgow are issued by the Magistrates Committee, in virtue of powers conferred by the 'Cattle-sheds in Burghs (Scotland) Act, 1866.' Hence this anomaly arises. By 'The Dairies, Cow-sheds, and Milk-shops Order of 1885' the Police Commissioners, as Local Sanitary Authority, are empowered to make Regulations, *inter alia*, 'for prescribing and regulating the lighting, ventilation, cleansing, drainage and water supply of dairies and cow-sheds in the occupation

of persons following the trade of cow-keepers or dairymen,' and the Order declares that no cow-shed shall be occupied of new until provision is made 'to the reasonable satisfaction of the Local Authority, for the lighting and the ventilation, *including air-space, &c., &c.,*' and 'no cow-shed whatever shall continue to be occupied, if, and as long as the lighting and the ventilation, *including air-space*, are not such as are necessary or proper for the health and good condition of the cattle therein.' Nevertheless, in Glasgow, byres are licensed and regulated under rules in the nature or application of which the Local Authority has no say. . . .

"What, then, do I advise?

"1. The registration, regulation, and control of byres ought to be in the hands of the Sanitary Authority. In 1866, by an amendment of the Contagious Diseases (Animals) Act, the powers relating to dairies, cow-sheds, and milk-shops previously vested in the Privy Council and Local Authorities under that Act were transferred to the Board of Supervision and Local Authorities under the Public Health Act. Obviously the present mode of licensing and regulating byres in Glasgow frustrates the main object of this transference, which was to secure that dairies, cow-sheds, and milk-shops, should be regulated and controlled from a public health point of view, by the constituted authority in that regard. There is, no doubt, a special clause in the Order, to the effect that, as regards Scotland, nothing in the Order 'shall be deemed to interfere with the Cattle-sheds in Burghs (Scotland) Act, 1866,' but this is one of those inconsistencies arising from piecemeal legislation, which it is not beyond the power of a little common sense to adjust and neutralise by local arrangement. I find, for example, that in Dundee and Greenock the Burghs Act is in abeyance, and the Sanitary Authority has sole and absolute control of byres; while in Aberdeen the following is the sensible compromise which has been effected, as described by the Town Clerk:—'In Aberdeen the registration and inspection of Cow-sheds in the occupation of persons following the trade of cow-keepers or dairymen are carried out under the Dairies, Cow-sheds, and Milk-shops Order of 1885. Cattle-sheds, however, such as are used for the housing of cattle other than milk cows, are left to the operation of the Cattle-sheds in Burghs (Scotland) Act, 1866. Of this last-mentioned class, however, there is only a very small number, consisting almost exclusively of sheds in connection with the local cattle auction marts.'

"2. In any case, under whichever Act it may be done, I

advise that in all existing byres the cubic space should be raised to 600 cubic feet; that in all new byres it should be 800 cubic feet, and that the regulations generally as to 'lighting, ventilation, cleansing, drainage, and water supply,' should be carefully revised so as to give full effect to the mind of the Sanitary Authority, and thereby enable them to discharge themselves of the responsibility imposed upon them by the legislature."

We sincerely trust that no petty departmental jealousy may cause the shipwreck of the very sensible suggestions emanating from the chief of the sanitary office. There can be no doubt that if we can stamp out bovine tuberculosis, we are far on the way to stamping out human tuberculosis.

PATHOLOGICAL AND CLINICAL SOCIETY.—The Society will meet in the Faculty Hall, 242 St. Vincent Street, on Monday, the 11th inst., at 8 o'clock. The following cases and specimens will be shown:—By Dr. Thos. Barr—a case of removal of a foreign body from the tympanic cavity by dissection of the auricle backwards; by Dr. Donald Macphail—an "osteoid cancer" growing from a dog's skull; by Dr. Thomas Reid—two cases of sarcoma of the choroid, illustrated by means of the magic lantern; by Dr. Maitland Ramsay—a tumour of the orbit.

ST. MUNGO'S COLLEGE.—The winter session of the Medical Faculty was formally closed on Thursday, the 24th March last, when Principal Blackie presided over a general meeting of governors, teaching staff, and students. There was a large, enthusiastic, and very orderly assemblage of students—male and female, and from the hearty and kindly way in which the names of those ladies who gained prizes or certificates were received, it seemed pretty conclusive that no great difficulties have as yet been met with in the conducting of mixed classes of medical students in St. Mungo's College. We understand that the experience of the teachers in St. Mungo's as regards mixed classes has, on the whole, been favourable; and we know that in some of the classes the ladies have done very good work, and that in the Pathological Laboratory one of them has conducted with great perseverance and success an intricate and difficult research.

In the evening the governors and teaching staff of both Faculties dined together in the Windsor Hotel, Principal Blackie in the chair. The Principal, in giving the toast of "St. Mungo's College," spoke very confidently of the success

which had attended the College during the past year, and hoped that before very long the governors might be in a position to take the preliminary steps for obtaining affiliation to the University. A number of other toasts followed.

NEW PREPARATIONS, DRUGS, INSTRUMENTS, &c.—From *Messrs. Burroughs, Wellcome & Co.*, we have received a specimen of their Kepler Essence of Malt. We have found it to be an exceedingly pleasant mode of exhibiting malt. This product has been introduced in order to offer the medical profession a reliable means for prescribing diastase, which is really the most important constituent of Extract of Malt, in a convenient and concentrated form. The essence is supplied in champagne pint bottles. The same firm also send us a specimen of Glycerinum Pepticum (Fairchild), which is said to be a very active concentrated solution of pepsin.

The *Liquor Carnis Company* inform us that they now supply their preparations in large bulk in order to suit the requirements of hospitals and dispensaries.

J. Harmsen of Hamburg sends us a sample of a Wooden Tongue Depressor, which he supplies at 3½d. the dozen. In his circular he alludes to the danger of conveying infectious disease by mouth instruments imperfectly cleansed. The advantage of the wooden slip is that it may be thrown away, and burned, we presume, after it has been used. There is something in the idea, but perhaps not very much. Of course he points out that any joiner could make the little wooden slip for this purpose, and he charges nothing for the suggestion.

Sacklin's Ready-made Poultices.—We regard this as a most useful invention. In private houses it is seldom that poultices are satisfactorily made, and here they are to be had made and ready for a small charge. All that is required is to soak them with boiling water from a kettle. The poultices are rendered antiseptic, and where there is no broken skin (as in chest affections) they may be used fifteen or twenty times. The poultices are in two forms—one divisible into four, and the other into twelve sections. There are linseed and mustard poultices.

REVIEWS.

A Manual of Operative Surgery. By FREDERICK TREVES, F.R.C.S., Surgeon to the London Hospital. London: Cassell & Co. 1891.

THE author has had, as he states in his preface, a definite end in view—viz., the production of a work on the practical aspects and technical details of such of the modern operations in the various departments of surgical treatment as have commended themselves to his judgment. Some such selective process as he has carried out in the production of his work is necessary amid the ever increasing lists of operations if the work is to be confined to anything like reasonable limits. Mr. Treves enjoys, as surgeon to the largest hospital in Britain and member of the various medical societies of the Metropolis, an ample field of observation for such a purpose, and we congratulate him both on the selections he has made and on his treatment of them.

The information contained in the various sections of the work is thoroughly reliable and well up to date. To students reading for the higher degrees, to junior hospital surgeons, and to surgical practitioners generally, it should prove both valuable and acceptable. The author's customary clearness and brevity of statement, and ready power of apt simile and illustration, render reading pleasant and easy, while the brief *résumé* of anatomical points bearing on each operation, evidently based on long observation, both on the living patient and the cadaver, gives fresh interest to the details of the operation and much useful information not otherwise to be obtained without patient search through not a few works on anatomy and surgery.

One feature of the work, that of giving the descriptions of operations associated with the names of particular surgeons in the actual words of the originators, has the double advantage of giving the reader his information at first hand without the labour of searching through the various surgical records for the reference given in the text, and of relieving the author of the present work from the risk of inadvertently warping the descriptions.

The illustrations, the larger number of which are from plates executed from the author's own sketches, are excellent, and lose nothing in value from their all but semidiagrammatic clearness and absence of too great attempt at high artistic finish.

We confidently commend the work to our readers as one which ought to be in the possession of every practical surgeon, and wish it the success it deserves in the form of many future editions. Should our good wishes be fulfilled, we trust the author will remedy the one serious defect we see in the work. While the sections on "after treatment" are replete with interesting detail, it seems to us that the author has been unable to extricate himself from the routine methods of more or less defective and mischievously frequent dressing still obtaining in many English hospitals, and we would commend to his notice the practice of many of the leading surgeons of Scotland and Germany, in whose hands wounds made in the most extensive and serious operations are, with or without the insertion of an absorbable decalcified bone drain, dressed once, that dressing being applied before the patient leaves the operating table, and very rarely, indeed, removed before the end of several weeks, when the wound is usually found healed.

Materia Medica, Pharmacy, and Therapeutics. By SAMUEL O. L. POTTER, M.D. Third Edition. P. Blakiston, Son & Co. Philadelphia. 1891.

THIS book is both well planned and well written. It may be reasonably expected to make a position for itself in this country, though its success in this respect will be limited by the fact that it is not adapted to the British Pharmacopœia. Medical students, therefore, cannot afford to make it their text-book. Otherwise, it supplies information upon the general principles of pharmacy, and instruction in prescription writing, admirably suited to their requirements. For this portion of the book we have nothing but praise. It is a model of clear and concise statement. We are quite at one with Dr. Potter in his contention that a general acquaintance with pharmaceutical processes is essential to the practitioner. We are also glad to note his protest against the confusion of the terms "official" and "officinal."

The section of the volume dealing with *Materia Medica*, though admirable in some respects, is open to less favourable criticism. The various therapeutic agents are discussed in alphabetical order, and the inconvenience, resulting from the separation of substances closely related, is to some extent minimised by mentioning, when considering each leading remedy, those drugs which may be regarded as its therapeutic relatives. In the chapter on the "Classification of Remedies,"

the definitions of therapeutic terms are extremely well stated. It is in the account given of the physiological actions of the individual drugs that we think this volume least successful. The subject, as presented here, cannot possibly be studied with profit. To state, for example, that "camphor is antispasmodic, anodyne, antiseptic, diaphoretic, a stimulating expectorant, a gastro-intestinal irritant, and a rubefacient," without any attempt to indicate the degree of its action in each direction, is only to confuse the student; and when corresponding statements are made about nearly every member of the *materia medica*, the memory rapidly becomes nauseated. A similar lack of discrimination is not infrequent in the different sections on therapeutics. There are too many diseased conditions mentioned in which each drug "has been recommended," and too few direct and detailed indications of the circumstances in which experience has proved the remedy efficient. The account given of the action of alcohol, and of digitalis, are decidedly incomplete. The value of the book would certainly be increased if these and other important remedies received fuller consideration, whilst such substances as "Wild Yam," "Eye-bright," and "Ladies' Slipper," might be banished to an appendix, or at least reduced to the level of smaller type. Indeed, their complete omission would scarcely cause any acute sense of loss.

Dr. Potter possesses a clear literary style, and excels in the art of definition. His vigour is sometimes rather pronounced, as when he recommends that an offending druggist be kicked "with a copper-toed boot."

The book closes with a useful therapeutic index and commentary, and tables of incompatibilities, hypodermic formulæ, &c., are supplied.

The Year-Book of Treatment for 1892. London, Paris, and Melbourne: Cassell & Co., Limited.

THIS Annual has long had an established position, which the present issue will fully maintain. The selection from the numerous therapeutic developments and suggestions of the past year is made with admirable judgment, and the arrangement facilitates rapid reference. In some cases the editor of the section offers a short criticism embodying his own experience—a feature which, we think, might be extended with advantage. The chapter on "Pulmonary Tuberculosis" contains a very complete historical account of the discussions

and criticisms following the introduction of tuberculin, and also a summary of the recent modifications of that substance. A selected list of new books, published in this country and abroad, forms a useful appendix to this useful volume.

A Dictionary of Treatment. By WILLIAM WHITLA, M.D.
London: Henry Renshaw. 1892.

DR. WHITLA has, we think, been fortunate in the selection of a title for his latest work. We have already dictionaries of medicine and dictionaries of surgery; he now provides us with a dictionary of treatment. And reference to the volume at once shows that it really is what it professes to be. The several diseased conditions are arranged in alphabetical order, and the methods—medical, surgical, dietetic, and climatic—by which they may be met, considered. There is no attempt to make the book a systematic treatise on disease, or a work on scientific pharmacology. Nor have we a mere list of drugs and suggestions that have, at some time or other, been put forward as useful remedial agents. But, on every page, we find clear and detailed directions for treatment, supported by the author's personal authority and experience, whilst the recommendations of other competent observers are also critically examined. The book abounds with useful practical hints and suggestions, and the younger practitioner will find in it exactly the help he so often needs in the treatment both of those who are ill, and those who are ailing. At the same time, the more experienced members of the profession may usefully consult its pages for the purpose of learning what is really trustworthy in the later therapeutic developments. The *Dictionary* is, in short, the recorded experience of a practical scientific therapist, who has carefully studied diseases and disorders at the bed-side and in the consulting-room, and has earnestly addressed himself to the cure and relief of his patients. Dr. Whitla is to be congratulated upon the thoroughness with which he has realised his idea. His extensive knowledge of medicinal and other therapeutic agents, and the exceptional opportunities he has enjoyed of testing these clinically, combined with careful observation and untiring industry, have led to the production of a book which will add to his own reputation, and will prove of great practical service to large numbers of his professional brethren. We should like to have seen some arrangement by which the practitioner could make notes in the volume. Possibly this

could be secured, in a second edition, by the selection of a page which would leave a broader margin. The book bears a graceful dedication to Professor Gairdner.

The Prescriber's Companion. By THOS. SAVILL, M.D. Second Edition. London: John Ball & Sons. 1891.

A Pocket Epitome of the British Pharmacopœia. By RUSSELL COOMBE, M.A., F.R.C.S. London: Bailliére, Tindall & Cox. 1891.

THESE books are of the "pocket" variety. Personally we shall not carry either of them. Nor should we even though we had a pocket or two to spare. Each, no doubt, contains some useful information, but nothing novel either in substance or arrangement.

Dr. Savill's "Companion" is a list of formulæ which he has found useful in practice, together with notes on such subjects as ventilation, disinfection, &c. The prescriptions are neither better nor worse than those in ordinary use, and the completeness and value of the other portion of the book may be judged from the fact, that the subject of "Invalid's Diet" occupies ten lines, and consists of directions for making beef-tea, chicken-broth, and egg-flip.

In the "Epitome" we have an alphabetical list of the official *materia medica*. Each article is numbered, and the composition of the compound preparations is indicated by placing the corresponding numbers after the official name. Thus, *Pulv. Ipecac. Co.* reads "372: 536: 597," and these numbers must be referred to in order to learn what they signify. This is certainly ingenious—but life is short.

Text-book of the Principles and Practice of Medicine. By the late CHARLES HILTON FAGGE, M.D., and PHILIP HENRY PYE-SMITH, M.D. Third Edition. Two Volumes. London: J. & A. Churchill. 1891.

IMMEDIATELY on its publication in January, 1886, the first edition of *Fagge's Practice of Medicine* took its place by universal consent as a standard work of the first rank. This position it has since maintained, and of this there could be no better proof than the appearance of the third edition of this very large and expensive work within the comparatively short period of five years. It is impossible to give anything like an exhaustive review worthy of the volumes; and fortun-

ately this is unnecessary, as the previous editions are well known to all who take any interest in the literature of Medicine. It is sufficient to state that the present issue is by no means a reprint, but is a carefully revised and expanded work. The extent to which the revision has been carried through is clearly stated, but by no means overstated (as a reference to the body of the book will show) in the preface. There is a quaint and caustic humour in the paragraph in which the Editor regrets that no reference to Koch's treatment of tubercle in this edition was possible—this part of the work having been sent to press "at once too late and too early." The omission he thinks, however, as things have worked out, is not altogether to be regretted. The chapter on the pathology of Fever has undergone very considerable remodelling as compared with the same section in the second edition. The work of Donald MacAlister, Wood of Philadelphia, and Hall White in this department of Pathology obtains full recognition, and the theory of the point of temperature-regulation being fixed at a higher level in Fever is not so strongly insisted upon as in previous editions. The chapter on Infection has also been revised so as to bring it more thoroughly abreast of the recent developments of bacteriological science. In the excellent chapter on Fibroid Disease of the Heart the name of a well known writer on this subject has been wrongly printed. The name of Dr. Karl Huber is rendered Hüter, in referring to his article on the subject in the 89th volume of Virchow's *Archives*. The same error also appears in the second edition, and we hope to see it rectified in future. We find no reference, however, to the important discussion on this subject which took place at the Berlin Congress in August, 1890.

In every respect the work well deserves its high reputation.

Ophthalmic Notes. By VERNON FORD. London: Baillière, Tindall & Cox. 1891.

THIS is a style of book which we are sorry we cannot recommend. It is one of these *multa in parvo* of which we certainly do not approve. At most it can but direct medical practitioners to symptoms which are but imperfectly described, and which can only be thoroughly understood by reference to larger works. No doubt Mr. Ford has read most extensively, and has boiled down his information into this little book. But what are we to think of a book which professes to be a help

to army and navy surgeons in which there is no reference to sympathetic ophthalmia? Of all departments of medicine we have always regarded ophthalmology as in a sense the most scientific, because it is the one most nearly allied to the physical sciences, and we hope that such grinds as this will never become substitutes for real knowledge.

Even junior students should begin their studies in ophthalmology with those elementary principles on which a knowledge of the ophthalmoscope is founded, and if they ought to do so, how much more should senior students study rather than cram?

Examination Questions in Practice of Medicine, with Answers. Part I: General Diseases. By "UTILE QUOD FACIAS." Edinburgh: G. & S. Livingstone. 1892.

THERE are in this book both questions to be answered and answers to be questioned. It gives an incomplete account of the "Constitutional Diseases." In most cases we have each heading, *e. g.*, Etiology, Pathology, Symptoms, &c., printed in italics, and supplied with a note of interrogation. These are the "questions." The "answers" are often imperfect, not always correct, and present no particular charm of arrangement. Examiners must please themselves; but we should recommend the book to students—as one to be avoided.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1891-92.

MEETING VI.—22ND JANUARY, 1892.

DR. JOSEPH COATS, *President, in the Chair.*

CERTAIN ASPECTS OF CORPUSCULAR ACTION.

BY PROFESSOR JOHN CLELAND.

This paper is published as a separate article at p. 241.

Dr. Coats felt sure that they had all expected a fresh and original discourse from Professor Cleland, and they had had it. He would be glad to hear observations from those present;

but, before calling upon any one, he had, in the name of the meeting, most cordially to thank Professor Cleland for the very remarkable paper which he had just given them.

Dr. Charles Workman wished to take the opportunity of thanking his old examiner, *Dr. Cleland*, for his address, and of asking him for further information upon some points; on some points, too, he wished to disagree with him.

Dr. Cleland had spoken with regard to the cells of the epithelium of the intestine, and seemed to take it as for granted that those cells acted as absorbents of the chyme. *Dr. Workman* did not wish to question this, but would mention that he had been taught by *Klein* that he believed that the chyme was absorbed not by the cells, but by the inter-cellular pores—that the cells of the epithelium had the property of throwing out secretions, becoming “goblet” cells, and pouring out their secretions from those “goblets.” He would like to know if further light had since that time been thrown on the action of those cells.

Further on in his paper *Dr. Cleland* had come to speak of the action of pressure on the proliferation of cells, and in doing so had stated that the giant-cells that so often occurred in tumours, in tubercular masses, &c., were due to the fact that the cells were so closely pressed together that, when a cell proliferated to form new cells, the different nuclei had not room to surround themselves with protoplasm, and so giant-cells were formed. *Dr. Workman* did not think this to be the case. A short time before *Dr. Steven* and he had examined the body of an ox which had been found tuberculous on its being killed; on its peritoneum there were grape-like bodies (one-sixteenth to one-eighteenth of an inch in diameter), hanging loose, and thus not subjected in any way to pressure, but yet in those bodies they had found most beautiful giant-cells. He thought that perhaps giant-cells were sometimes due to pressure, but that this was not always the case.

Another point was in reference to the changes in the bones of the skull. *Dr. Cleland* had spoken of the depressions as due not to pressure, but to traction, and at the same time had spoken of the enlargement of the antra, &c., as due to traction. In what respect, he would ask, did traction differ from pressure? He supposed that the pressure was just taken off from below, and that then the atmospheric pressure, acting from without, caused the depression in the bones.

With regard to the question of phagocytosis, *Dr. Cleland* had seemed to think that they all agreed on that point, but *Dr. Workman* would dispute the position that phagocytes had

anything to do with the destruction of bacilli. He had not seen any satisfactory proof in favour of the theory that they did destroy bacilli, and that theory was disputed by Koch and others. He was not in the position to deny it, but still he was very sceptical about it.

Dr. J. Yule Mackay had listened with much pleasure to *Dr. Cleland's* address, the subject of which, as he knew, had engaged his attention for some time; the subject had also been a matter of interest to *Dr. Mackay* himself, as their having spoken of it together had led to his having had it often in his thoughts. When one considered the question of the changes in bone—the growth of cartilage into bone, to be followed by fresh absorptive changes there—and when one remembered that as yet no satisfactory explanation had been given of those facts, it would be admitted that *Dr. Cleland* had rendered to them, and to science at large, a distinct benefit, by having gone back to the question as to how and why cells live, and what is the activity of cells, and by having from that point considered the question of the absorption of bone. He thought that corpuscular action had received at his hands the attention which it deserved; it had for a long time been much neglected; and thus *Dr. Cleland* had done them a great service in bringing the matter before them, especially as every one was apt to forget this really important point. Every medical man present, he thought, should take what had been said to heart, and gather from his experience some proofs in regard to the questions that had been raised.

His pleasure in listening to the address had been enhanced, partly by his having half-known *Dr. Cleland's* views beforehand, and partly by something new having been expressed to him that evening.

Mr. Maylard said that one of the great boons of *Dr. Cleland's* address was that it suggested questions for surgeons, physicians, pathologists, and physiologists, as well as anatomists. He naturally looked rather to the surgical thoughts he had thrown out, and would refer to what had been said about counter-irritation. Some time ago he had had a conversation with *Dr. Cleland* on that subject. Strangely enough, he seemed now to leave out of consideration the effect of counter-irritants upon the nerves. The effect, upon a deep part, of an application to the skin had always seemed to *Mr. Maylard* to depend greatly on reflex action. When they had spoken together of the actual cautery—and he believed that *Dr. Cleland* thought a good deal of the actual cautery in early stages of affection of the spine and of other joints—he under-

stood him to advise a superficial application of the cauterization. By such means, one would not destroy the nerves completely, but merely irritate their extremities, and thus benefit would be obtained reflexly. That there must be some reflex influence produced by those applications, Mr. Maylard said, was shown in a number of ways. If one put one hand or one foot into hot water, the other also became warm, and that must be from reflex action.

He had been much interested in what had been said about iodine. Iodine, as usually employed, was often ridiculed, and often did more harm than good, because it hindered prompt surgical action when it was really required. Men thought to give it a trial before proceeding to operation, and this merely caused delay. But in the form of a freshly-prepared ointment it could be absorbed and act more potently. There, again, however, though Dr. Cleland laid stress upon the corpuscular action, it might act—just as the actual cauterization might be supposed to act—by irritating peripheral nerves, and producing a deep action reflexly.

Dr. Rutherford thought that the problem that was suggested by Dr. Cleland's statements was, so far, still somewhat obscure, and that what had been suggested for their consideration might be expressed thus—The relation of vital processes to processes that could be stated in physical or chemical terms. It seemed to him that Dr. Cleland had in his paper continued very much on the lines of the physical theories, and that to that extent they had still something to be desired. He thought, too, that in considering corpuscular action there was something to be spoken of which was not exactly comprehended in the question of pressure or its opposite. He did not feel able to pursue that point to any greater extent.

With regard to what Mr. Maylard had just said in reference to theories of counter-irritation, and the employment of theories of corpuscular action in explanation of them, it seemed to him that he had touched a point of interest—at all events he had called his attention to something implied in Dr. Cleland's statement. He might be assuming too much, but he considered that Dr. Cleland's theory had again somewhat of the physical or physico-chemical. He would beg to point out that something had recently been suggested by Dr. Woodhead, with reference to the action of counter-irritants, and more especially to the action of iodine. The action of iodine was said to have promoted the activity of cells in dealing with micro-organisms—and this was a suggestion

in which iodine, as a chemical agent, was not simply brought into contact with the activity of the cells, normal or pathological, but was brought into play as an agent, promoting their greater or less presence in a given area, in order that they might deal with certain bacterial conditions in that area; and that was no longer a simple physical or chemical relationship between the iodine and the irritation of the cells of the part, but the irritation was related to the cells as organisms dealing with organisms of another class.

Dr. Lindsay Steven said that he rose with very great diffidence to speak on the subject which *Dr. Cleland* had brought before them, but it seemed to him that in dealing with it the Professor had been dealing with one of the most important matters coming under the notice of anatomists and physiologists on the one hand, and of those more particularly concerned with diseased processes in the body, on the other. If he could draw any general conclusion from the paper of the evening as a whole, it would be this—to regard all cells, in their absorbing or secreting capacities, as more or less the same. According to the views enunciated in the paper, it would seem to be urged that one corpuscle could not be differentiated from another for any specific purpose in the organism. They were bound to admit that all cells originated from the parent ovum, and in that regard that they were all more or less united by a common bond; but it seemed to him that, before very long, cells became differentiated into separate classes or genera, and kept to the different genera throughout the rest of the life of the cells and of the organism.

Thinking of it from *Dr. Cleland's* point of view, they had to consider, more especially from the pathological side, the influence of external agents on cells. All cells, from one point of view, were common with regard to the action of certain irritants. Poisons, for example, act on them all very similarly; this might be illustrated by reference to the tubercular poison, which produced proliferative changes in any of the cells that might be attacked. But if they thought of another departure that cells showed, they saw them preserving their generic characteristics. He referred to what they saw in tumours. So far as he knew, they could not explain the occurrence of a neoplasm by a poison such as the tubercular poison. They had here the cell starting off living its own life independently of the life of the organism, and producing a neoplasm that no poison could produce. He could not give any idea of the irritant that sets a neoplasm

agoing; but the fact of the neoplasm seemed to him to show that cells tended to take on a form which was differentiated and remained so.

It had struck Dr. Steven also, in connection with counter-irritation, that Dr. Cleland made no reference to nervous agencies. He had been in the habit of teaching that these had a considerable influence on the results produced by counter-irritation.

Altogether, he thought that all of them had received in Dr. Cleland's address material for very close reflection and study. He had made those remarks because, as much as anything, he felt that he wished to express the great pleasure and great profit with which he had listened to the very suggestive paper from his old teacher.

Dr. Joseph Coats, like most of the speakers, had considerable compunction in saying almost anything on the subject. There was hardly a sentence in the address that was not full of suggestive and of debatable matter. To begin with, the title suggested a reform in nomenclature which would be a most desirable, though, perhaps, not a possible one. They had been having, in a new form, the *cell* theory, and it seemed to him that *corpuscle* was a much better term, the word implying the idea of a small, or dependent body within the large body. He had been much interested by the remarks about the relation of nutrition to function. The alternation of nutritive and functional activity was, to his mind, a very suggestive idea, and called for close observation both in normal and pathological conditions. With Dr. Steven, he must say that he was not altogether sure that he could agree with the view of the interchangeability of structures. He had gathered that Dr. Cleland was quite of opinion that muscle might develop out of connective tissue; that might be so, but was different from his ideas on the subject; he did not think they had muscle growing where there was not muscle before, and thus he considered that muscle must grow from muscle. Further, the manner in which Dr. Cleland had referred to leucocytes was different from the manner in which he had been in the habit of referring to them. Leucocytes he had seemed to regard as really in some degree cells that could do anything, or at least could be formed into any kind of tissue. That he could not admit. The course of observation in recent times had greatly reduced the part of leucocytes, especially in formation processes. They were accustomed to the idea, prevalent some years ago, that almost everything might be formed from leucocytes. Thus they had Ziegler's experiment

of introducing two glass plates into the peritoneal cavity; he had taught that leucocytes creep in between them and cause formation of tissue there, but that had been wrong; it was the fixed cells that produced the growth, as Ziegler himself now admitted. He once heard the extreme of that idea he had been referring to expressed in a discussion at the British Medical Association. One member there had spoken, almost in a world that was different from the world that the rest of those present had been thinking in—he had seemed to think that every cell was as good as every other, and that each individual cell had all the powers of the ovum, and could give birth to any kind of cell whatever. That was the extreme of that idea; perhaps the balance had gone too far in the other direction now, and the truth might be found in the golden mean.

Phagocytosis had been referred to. Dr. Coats had convinced himself that phagocytosis was a reality. He had had an opportunity of examining some of Metschnikoff's specimens, and that leucocytes and fixed cells picked out solid bodies and bacteria, and that the bacteria underwent changes in in those cells, he had no doubt. That phagocytosis occurred he was thus convinced; but it was another question how far it was an explanation of the phenomena. Metschnikoff himself in no way asserted that it was the only way of getting rid of intruding bodies, though it was one way—of that Dr. Coats was sure.

He could only add his testimony to the pleasure with which he had listened to the paper, and to the great profit that one received from Dr. Cleland's interesting way of looking at things, and from the many suggestions he had thrown out.

Professor Cleland, in reply, thanked the Society for the manner in which it had received his paper. On many of the points adverted to by speakers he had not formed definite conclusions, and he had not attempted to express any. He had begun trying to follow out the processes of corpuscular action, and had found much which had not occurred to him before; and those new considerations he had noted in the hope that at some future date their practical bearing would be suggested by practical men.

With regard to the remark made by the President about the word "corpuscle," that was a fight which he had been trying to wage for twenty years back, but in which he had hitherto fought single-handed. It was more than a mere fad, and he thought there was reason in it. The word "cell"

gave one the idea of a thing with a wall; but the notion that the wall was an important part had died away, and been succeeded by the belief that the life belonged to the protoplasm, a conception not existing when Dr. Cleland began his studies. Nuclei had been known at that time, but were often misunderstood. The protoplasm, though already described by Mohl, was much neglected. But now it was recognised that the protoplasm and nucleus were the parts which constituted the unit of life, and that the cell-wall was an occasional and adventitious addition. That was why he objected to the indiscriminate use of the word "cell."

With regard to the different kinds of corpuscles, he hardly meant to go the length of saying that all corpuscles were identical. They must all admit that at an early stage there were three different kinds in the three layers of the embryo; but he had formed a very distinct conclusion with regard to the unity of the corpuscles that have to do with connective tissue, cartilage, and bone. He was perfectly certain that cartilage corpuscles became the parents of other corpuscles, some of which were developed into primitive marrow-cells, others into bone corpuscles, and others into connective tissue corpuscles. Ranvier went that length, or at least admitted that bone was formed both from periosteal and from cartilage corpuscles. Then bone afterwards underwent the changes seen in absorption. Instead of a single bone corpuscle in a lacuna, they had in larger lacunæ, or in pits of Howship, multi-nucleated masses, myeloplaxes or osteoclasts. As to the expression "giant cells," he had used that term as another word sometimes used for myeloplaxes or osteoclasts, and by no means meant to include all multi-nucleated masses met with in pathological circumstances. He only meant to refer to processes going on in bone. When one saw a bone corpuscle in a lacuna, and then a larger lacuna with two or three nuclei, and larger spaces still with ragged edges, containing a protoplasmic mass with a number of nuclei, it looked as if there had been multiplication of nuclei without room for separation of the protoplasm into parts, and that thus a giant corpuscle was formed from pressure. Evidently the distinctive feature of giant-corpuscles was that the division of nuclei outran the division of protoplasm. He by no means meant to assert that such action of pressure would, by itself especially, account for multi-nucleated corpuscles, wherever met with, but he thought it was an element in the normal processes in bone.

With regard to leucocytes, he owned that he could see no

other way of understanding connective tissue than by regarding fixed cells as leucocytes which had put on their coats; and just as an Irishman spoke of taking off his coat when he had special work to do, so it was before the leucocytes "put on their coats" that they were most active. He thought it was a pity that when Cohnheim rediscovered diapedesis, he should have taught that suppuration was entirely to be accounted for in that way. Thus, a paper was once published in the *Royal Society's Proceedings*, giving an account of a study of inflammatory changes seen in a dissected frog's lower jaw; only leucocytes, and not connective tissue corpuscles, had been seen affected, and the writer seemed to think, because he did not see the fixed cells taking part in the action excited, that leucocytes must always be the only corpuscles involved. But Virchow's observations showed the whole course of division of fixed corpuscles within their walls, followed by disappearance of the wall and liberation of the progeny as pus-corpuscles. He could not see that this process, observed by Virchow and his followers, was made less probable by the discovery of the immediate collection of ready-made leucocytes as pus. It was simply that they had to deal in the one state of matters with observation of chronic processes, and in the other with acute. No one doubted diapedesis now-a-days, but it was just equally certain that a number of people had seen corpuscles, on their road to a chronic centre of suppuration or a chronic mass of tubercular deposit, accumulated inside of a cell wall. He could not see his way to throw overboard Virchow's observations, verified by many, and, among others, by Sir William Turner; and was convinced that leucocytes and connective tissue corpuscles were only different conditions of one kind of living element.

As to the way in which intestinal absorption is carried on, he was aware of the differences of opinion with regard to the part played by the epithelium. There was no doubt, however, of this—that the chyle did enter into the interior of the epithelial cells. That was certain. It was easy for any one to see it by feeding a rabbit on bread and milk, and then scraping off some epithelium, when he would find cells loaded with fat globules. That a certain number of cells became converted into goblet cells there could also be no doubt, neither was there any doubt that the cement between the epithelial cells was softened during absorption, and he was not going to deny that chyle found its way in through the softened cement, but he believed that the route through epithelial cells was the normal and principal

route, and that the evidence was in favour of the direct continuity of the epithelial cells with the deeper part of the villus. If they had the molecules of oil going through the thickest part of the cell wall (that towards the lumen of the gut), it was easy for it to get on into the commencing lacteal.

In connection with counter-irritation, the question had come up whether the effects could be accounted for by reflex action. They must all see very considerable difficulty in the way. Reflex action did not affect the part opposite the site at which the irritation was applied, but they very generally applied external applications opposite the deep part to be relieved. When it was a knuckle of intestine that was affected, they could not even make the hypothesis that something in the original segmentation of the body connected the nerves and the parts underlying, for the intestines shifted their position. But he supposed that no one applying a counter-irritant to the intestine would apply it elsewhere than opposite the seat of pain; therefore, they did not really believe it was by reflex action of nerves that the result was obtained. At the same time he admitted that in local applications reflex action might be an important element, although it was not the element that he had wished to follow out in his paper. With regard to the actual cautery, Mr. Maylard must have misunderstood him. When he used the actual cautery he had not been timid. At one time he thought that it was impossible to apply it too deeply in disease of the vertebræ. He used to burn through the skin into the subcutaneous fat in order to avoid subsequent pain from the dragging of a hardened eschar. He had to give up this heroic treatment, because in two cases in which the instantaneous relief from pain was well marked, paralytic symptoms set in. On the other hand, Corrigan's cautery was very useful when applied to the extent of producing white blisters, which were painful for some time, but not for very long. With the actual cautery, as in most cases with other methods of counter-irritation, one always got the benefits by applying immediately over the part affected.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

NERVOUS DISEASES AND INSANITY.

BY DR. R. S. STEWART.

A Case of Lethargy. By Clarke (*American Journal of Insanity*, October, 1891).—The subject of this case was a woman, who was 69 years of age when she came under observation at the Kingston Asylum, Ontario. There was pronounced neurotic predisposition, her father having suffered from general paralysis, while her mother was liable to attacks of partial loss of reason. In childhood she was subject to some head trouble, and was regarded as peculiar. At the age of 24 she became changed in disposition, acted strangely, and became untruthful, whimsical, and easily worried. At 27 she had temporary left hemiplegia, and at 30 suffered from convulsions (probably hystero-epileptic), which were followed by a stuporous condition lasting two years, during which she was confined to bed. Two years later there was a recurrence of the convulsions, again followed by lethargy lasting two years. After an interval of two years, in which she had fair health, she again took to bed, where she remained in a stuporose state for seven years, and very nearly died. Recovering, however, she remained well for five years, and then the final attack supervened at the age of 55. At first she spoke occasionally in a childish manner, exercised a certain amount of discretion regarding her food, refused sometimes to be fed, fasting completely, on one occasion, for fifteen days, and at other times ate ravenously. She had been in a lethargic condition for eleven years prior to her admission to the Asylum, and during the whole of that time only spoke once. There was a distinct difference between her condition by day and that by night. During the day the legs were extended; at night they were drawn up. She lay on her left side habitually at night, and the sleep appeared to be much sounder than during the day. Several times she got out of bed unassisted.

On admission she was extremely thin, weighing only about 60 lb., and was to all appearance fast asleep and incapable of being roused. In this state she remained nearly the whole of the time (over four and a half months) she was in the Asylum, giving little indication, until the last few weeks of her life, that she had the slightest knowledge of the fact that she lived. Temperature was almost invariably subnormal; she was correct in her personal habits; the quantity of urine excreted was about one-seventh of the normal, and the bowels moved but seldom. The facial expression was quiet and almost death-like. When roused, she would for a moment open her eyes, but immediately fell asleep again. The superficial reflexes were present, but the knee-jerk was absent. During the last three weeks of her life she was slightly more conscious and occasionally spoke. Death, hastened by diarrhoea, occurred thirteen years from the commencement of the final attack of lethargy. The body after death weighed 50 lb. The brain, weighing 35 oz., appeared healthy, with well marked sulci and abundant grey matter, and the other organs, beyond being small, presented nothing noteworthy.

Multiple Symmetrical Lipomata in a General Paralytic. By Targowla (*Annales Médico-Psychologiques*, March-April, 1891).—A male general paralytic, aged 42, presented asymmetrically disposed fatty tumours in various stages of development over the zygomatic arch, the mastoid, chin,

clavicles, deltoid muscles, and sacrum. The writer directs attention to the occurrence of these tumours in ataxia and obstinate neuralgia, and attributes their origin to a lesion of some trophic centre, as yet undiscovered, of the cerebro-spinal system.

Chloralamide. By Marandon de Montyel (*Annales Medico-Psychologiques*, March-April, 1891).—The conclusions arrived at by this writer as regards the hypnotic value of this drug are that it is inoffensive but inefficacious in the unrestful insomnia of the delirious and epileptic, very efficacious but very dangerous in the sleeplessness of general paralysis, on account of the hyperæmia of the brain which it induces; that, for the same reason, it is not to be recommended in senile dementia; and that it is useful only in the insomnia without restlessness of melancholia. In the last mentioned class its beneficial action is due to the cerebral hyperæmia, a condition which can be more certainly induced by opium.

Relative Frequency of General Paralysis in the Laity and Clericals. By Bouchaud (*Annales Medico-Psychologiques*, May-June, 1891).—Among ecclesiastics, general paralysis is excessively rare, occurring only two to four times in every hundred admissions, as compared with 25 to 30, which is found, from the statistics given, to be the rate in the laity. This is attributed to the rarity in the former of the three prime etiological factors, venereal excesses, syphilis, and alcoholism.

General Paralysis in Arabs. By Meilhon (*Annales Medico-Psychologiques*, May-June, 1891).—General paralysis is rare in Arabs, the proportion being only 5·13 per cent of admissions, and it assumes chiefly the maniacal form. It does not appear prior to the year 1877. The quality of those who are affected is a new proof that the disease is chiefly one of civilisation.

Suicidal Melancholia cured by the occurrence of Erysipelas of the Face. By Szczypiorski (*Annales Medico-Psychologiques*, May-June, 1891).—This case occurred in a man, aged 44, and was characterised by hereditary predisposition, fixed delusions, and repeated attempts at suicide. It showed every indication of becoming chronic, but at the end of twenty months severe and prolonged facial erysipelas supervened, and from that time improvement set in, and ended in complete and permanent recovery. The writer attributes the good effects to a powerful revulsive influence of the intercurrent malady, inducing an anæmic condition in the brain, which at the time was affected by very pronounced congestion.

Three Cases of Suicide occurring in Three Years in Three Sisters. By Mabile (*Annales Medico-Psychologiques*, September-October, 1891).—The following is the history of the family to which these three sisters belonged:—The mother was arthritic to a pronounced degree; one of her sisters died insane, and a niece was mentally affected, and her father was very rheumatic. The father was very irritable and alcoholic. The family consisted of seven. The first was twice confined in an asylum for attacks of acute mania; the second, an unruly girl, drowned herself at the age of 13; the third became melancholic at the age of 21, and, on the eve of the anniversary of her sister's suicide, drowned herself at the very spot where her sister had taken her life a year previously. The fourth member, a boy, at the age of 15 became affected with hystero-epileptic insanity, and was for a time confined in an asylum. The fifth was admitted to the asylum at the age of 21, suffering from melancholia with suicidal tendencies. She improved considerably, and was allowed a few hours' leave of absence in the custody of her mother, a privilege which seemed to greatly delight her; but when walking through the fields, she suddenly rushed swiftly away and threw herself into the canal, at the identical place where her two sisters had taken their lives,

succeeding like them in accomplishing her object. The two remaining members of the family are still young, and their history is still to make. We content ourselves, says the writer, by pointing out the pathological history of this unfortunate family, more especially to those, philosophers or others, who refuse to see in heredity and its morbid manifestations anything other than an exception or a coincidence.

Methylal in the Insane and its Action Compared with Chloral. By Marandon de Montyel (*Annales Médico-Psychologiques*, September-October and November-December, 1891).—The results are based upon the administration of this hypnotic to 41 insane male patients. Its therapeutic action was found to be feeble. It produces an increase of sleep, without being able to compel it in cases of intense insomnia, and is useful in those instances where the sleep is interrupted or insufficient. In one-third of the cases it produced absolutely no action whatever. That which, in the writer's opinion, irremediably condemns it is the rapidity of habituation, and another inconvenience is that it is more volatile even than ether. The results obtained from chloral were much more satisfactory, success attending its administration in nearly 77 per cent of those cases in which methylal had been tried and failed completely. Only twice was chloral found inferior to methylal. Chloral as compared with methylal has the double advantage of inducing sleep at once longer and more continuous, and of prolonging its hypnotic action for two or even three nights after a single administration.

PHYSIOLOGY.

By WILLIAM SNODGRASS, M.A., M.B., C.M.

The Auditory Centre.—Dr. J. Ferguson of Toronto, in the *Journal of Anatomy and Physiology* for January, 1891, describes a case interesting in its bearings on cerebral localisation. The patient, a young man of strumous constitution, and with a family history of scrofula and phthisis, had suffered for a period of eight years with a chronic otitis media in the right ear. The hearing on this side was latterly totally lost when the vibrations proceeded from without the ear, but was slightly retained for vibrations conducted through the solid media of the bones. For two years prior to the death of the patient there were symptoms of a cerebral tumour situated in the right temporo-sphenoidal region. There were convulsive movements, with auditory auræ, both being referred to the left side. Hearing on the left side became quickly lost, and for six months was entirely gone, though the auditory auræ were still present.

A *post-mortem* revealed a large tumour in the first and second temporo-sphenoidal convolutions of the right side, destroying the first entirely and the second slightly.

Here we have the right ear rendered deaf by disease in the middle portion, though still connected with the opposite hemisphere, which was found healthy. The auditory nerve connecting the right ear and the left hemisphere was in a state of functional activity, as shown by the test of sound passing through the solids of the head. The left ear was rendered deaf by disease of the right first temporo-sphenoidal convolution. Hearing was never restored by compensation. Why the hearing in the left ear never returned by compensation, though the left was normal, is difficult to account for. The most reasonable explanation in this case is the fact that the right ear had long been so useless that its co-educating influence was absent. When the tumour on the right side of the head had destroyed the hearing in the left ear, the right ear had already long been useless as an organ of hearing. In this way there was a period of total deafness, which continued till the death of the patient.

On the other hand, it may be that the left temporo-sphenoidal lobe, though

it had appeared healthy, had undergone some minute change owing to the deafness in the right ear from the otitis, that prevented it establishing compensation with the left ear, which was normal. The importance of the case, however, rests entirely in the proof of the location of the centre for hearing in the first temporo-sphenoidal convolution of the opposite side to that of the ear affected.

The Elimination of Iron by the Bile.—The existence of iron in the bile has been long known; but the amount of iron thus excreted has, according to A. Dastre (*Archiv. de Physiol. Norm. et Path.*, January, 1891), been overestimated at the expense of the other excretions, and more especially of the urine. He finds that the proportion of iron present in bile is very variable. The average amount is 0.94 per cent. The variation does not depend upon the amount of water alone; for, whereas in one experiment a dry residue of 10.5 gr. contained 2.22 mgr. of iron, in another a dry residue of only 8.17 gr. contained 3.20 mgr. of iron. The amount varies from day to day, although the food is kept constantly the same. Hence it must be concluded that the variation is due rather to hæmatopætic and hæmatolytic than to alimentary conditions. The mean quantity of iron excreted during twenty-four hours by a dog weighing 25 kgr. is 2.34 mgr., or 0.09 mgr. per day per kgr. of animal.

Muscular Rhythm in Normal Contraction.—N. Wedenaki, Professor of Physiology in the University of St. Petersburg, contributes to the *Archiv. de Physiol. Norm. et Path.*, for January, 1891, upon the above subject. His researches show that when a tetanising current is applied to a nerve the muscle vibrates synchronously only within certain limits. When the frequency of irritation passes these limits, the muscle no longer answers with a corresponding number of vibrations or musical tone, but with a particular noise. The transition is not immediate. After the muscle has ceased to give a corresponding musical tone, and before the noise is heard, it reacts to stimuli of intermediate frequency, by a tone musical, but of a lower number of vibrations. The tone is then a fifth, an octave, or even two octaves lower. The property of responding by corresponding or by transformed tones varies with the kind of animal, the nature of the muscle, the degree of fatigue, and the strength of the stimulus. Hence we cannot, from the vibratory rhythm of the muscle, infer that of the stimulus, or in normal contraction that of the nerve centre. The normal muscle sound corresponds to that produced artificially by very frequently repeated stimuli, the rhythm, however, being transformed in the peripheral apparatus.

The Specific Gravity of the Blood in Health and Disease.—E. Lloyd Jones (*Journal of Physiology*, September, 1891), from observations on the specific gravity of the blood in health and disease, draws the following among other interesting conclusions:—The specific gravity of the blood varies in different parts of the body, but is usually the same, or nearly so, on corresponding parts of the symmetrical halves of the body. It may be changed in one part and remain unaltered in others, mainly from variations in the blood supply of the part.

The specific gravity is high in birds, low in cold-blooded animals. It varies in different persons so much that what is normal in one would be a sign of disease in another. It is generally lower in women than in men; but is about the same in both sexes before the fifteenth year, and is higher in old women than in old men.

At birth the specific gravity is about 1066, at the third year about 1050, and during middle life 1058 for males, 1055 for females. In girls from 15 to 22 the lower limit consistent with health falls to a very low point.

It is lower in persons with light than in persons with dark eyes, hair, and complexion. Poor physique goes hand in hand with a low specific gravity of blood, good physique with a high blood specific gravity.

A rise in specific gravity accompanies starvation, regular exercise, sleep; menstruation causes a slight fall.

In chlorotic anæmia it may be as low as 1030, but in another form of anæmia, characterised by pallor of the face and tendency to headache, it may be above the normal.

In pernicious anæmia the specific gravity is always low, and may be as low as 1029.

In valvular heart disease the specific gravity is normal or above normal while compensation is maintained, but becomes subnormal when compensation fails.

In acute nephritis it is either normal or subnormal. In chronic parenchymatous nephritis—subnormal unless with much cardiac hypertrophy.

In chronic interstitial nephritis and arterio-sclerosis the specific gravity is normal or above the normal where there is cerebral hæmorrhage or a tendency to it. It is low with cardiac failure or œdema, or a tendency to either.

The diagnosis of cerebral hæmorrhage may be rejected if the specific gravity in a suspected case be found subnormal, but a high or normal specific gravity does not enable us to differentiate cerebral hæmorrhage from other diseases which simulate it.

In gout, associated with renal disease, the specific gravity is low; in scarlet fever, it appears to be slightly increased, but is low if there is nephritis. It is not much changed in first week of typhoid, but falls in second and third week, the change being most marked in severe cases.

It is subnormal in rheumatic fever, scurvy, phthisis, syphilis, myxœdema, and lead poisoning. In diabetes mellitus and insipidus, usually above the mean. Local changes are observed in recent hemiplegia from cerebral hæmorrhage and embolism, the specific gravity being lower on the paralysed side.

The specific gravity of the blood is frequently above the normal in certain diseases of the nervous system, such as locomotor ataxia, spinal irritation, and the post-epileptic state.

DISEASES OF THE EYE.

By FREELAND FERGUS, M.D.

Loss of Sight during Lactation.—Mr. Nettleship, in the last number of the *Ophthalmic Hospital Reports*, gives several curious cases of loss of sight, in some cases amounting to blindness, during the period of lactation, from which amaurosis the patients recovered. The curious fact is, that in most of the cases ophthalmoscopic changes after restoration of sight are wanting.

While pointing out that frequently during pregnancy there is loss of sight from retinitis associated with albuminuria, still no traces of such a condition can be seen in the cases under discussion. Nor does amaurosis after hæmorrhage explain matters, for that was not a feature in these cases. Nettleship attributes them to a neuritis which has subsided without leaving any permanent destruction of nerve fibre.

Sarcoma of the Uveal Tract.—Lawford and Treacher Collins in the same journal give an account of 103 cases of sarcoma of the uveal tract. They compare their data with those of other observers, more especially with those of Fuchs. The chief interest, of course, centres in the information they have to give as to the prognosis. It is interesting to find that 20 cases were alive as many as three years and more after the removal of the tumour—one having survived as many as eighteen years and another sixteen. The authors believe that recurrence does not depend on the nature of the cells forming the tumour; and, so far as we can gather from the tables, those cases in which the optic nerve is noted as not being involved have the best chance of life; be it said,

however, that in a good number of cases in which the tumour recurred soon, the optic nerve is noted as not being invaded, while in others that have survived for a considerable period, it was found to be involved.

On the Operative Treatment of Glaucoma.—This is a most important paper by Mr. Treacher Collins. It contains an account of the pathological examination of 23 eyes which had been operated on for glaucoma, and afterwards excised. The operation which had been performed on 20 of these eyes was iridectomy; in 2 it had been sclerotomy, and in another optico-ciliary neurotomy. In one of the cases treated by sclerotomy an optico-ciliary neurotomy was subsequently performed. 13 were excised on account of the return of increased tension, in most cases accompanied by pain; 3 because they excited sympathetic ophthalmitis (in two of these the tension was increased at the time of the excision); 1 on account of the escape of the lens and prolapse of the ciliary body; 1 on account of wound of the lens accompanied by inflammation and pain; 1 for hypopion keratitis ten years after operation, during which time the tension had remained normal; and 1 for iritis and pain, the tension having been normal for a year.

Mr. Collins' investigations are undertaken in the hope that some light may be thrown on the causes of failure in the operative treatment of this disease. The range of cases seems to have included all the ordinary forms of glaucoma, and the period between the original operation for glaucoma and the excision of the eye varied from one day to nineteen years. It may be mentioned that in both the sclerotomies a cystoid cicatrix was found.

Special attention has been given by Mr. Collins to the examination of the operation scar. As the line of junction of the cornea and sclerotic is very oblique, an incision passing internally to the termination of Bowman's membrane would be entirely corneal. One between the termination of Bowman's membrane and the beginning of the ligamentum pectinatum would be partly corneal and partly in the sclerotic. Lastly, an incision through the ligamentum pectinatum is almost entirely in the sclerotic. In only two of the cases had the incision reached the ligamentum pectinatum, and in none had Schlemm's canal been opened.

In all of the iridectomies except four a portion of the root of the iris had been left, which in all except one was adherent to the cornea. In the four exceptions the iris had been excised up to its very insertion. These were recent cases, and the iris had not had time to become adherent to the margin of the corneal. Probably the increase of tension after operation in cases in which the iris has been removed up to the insertion are to be attributed to a tilting forward of the lens and an adhesion between the lens and the iridectomy cicatrix. In one eye an adhesion was found between the pupillary margin of the iris and a point near the centre of the cornea. This is likely to be accounted for by a wound having been made in this situation by the point of the keratome. In speaking of keratome operations Collins points out that when the incision is made with a knuckle of iris prolapsing into the wound, causing a gap, the conjunctiva heals over this, and as the pressure rises the iris tissue stretches before it and gradually atrophies. Sometimes there is a rupture, and the fluid discharges itself beneath the conjunctiva.

Sclerotomy wounds are next discussed. These can be more safely made in the periphery than iridectomy wound, for in iridectomy the ciliary body is apt to prolapse after the removal of the iris. This drags on the suspensory ligament, and consequently the lens becomes displaced; in one case mentioned by Collins it escaped.

Our author is of opinion that an iridectomy may do good in one of three ways:—

1. "When the apposition is recent, very slight means are sometimes sufficient, the escape of the aqueous and a drag on the iris being enough.

2. "In some of the recent and acute cases I have shown that the iris tears away from its extreme root, thus leaving a large portion of the filtration area

free for drainage, even should the remainder of the iris retain its faulty position.

3. "In other cases a permanent gap is maintained in the walls of the globe by the prolapse of a fold of iris into the wound. This iris tissue subsequently either becomes stretched and atrophied, or ruptures periodically, thus allowing the aqueous to pass through it into the subconjunctival tissue, and become absorbed by the lymphatics and vessels situated therein."

A sclerotomy may produce a permanent reduction of tension in the first or third of the above ways.

Mr. Collins does not believe in a cicatrix being more permeable than ordinary corneal tissue. In this view he entirely differs from Priestly-Smith, who, in his recently published monograph, is extremely strong on the point. Unless, indeed, the animals on which Schoeler operated had glaucoma, then his experiments are not to be regarded as conclusive.

When none of the above conditions are attained, then the operation does not relieve tension. The conclusion drawn by the author is of great importance. It is that iridectomy should be performed in the early stages of the disease before there is permanent adhesion between the root of the iris and the posterior surface of the cornea. It is of great importance to be able to diagnose cases in which there is extensive adhesion of the root of the iris to the cornea. Its reaction to eserine is of use in this respect, and the presence or absence of what Collins calls ectropion of the uveal pigment is also of assistance. Atrophy of the iris tissue as it occurs in glaucoma and ectropion of pigment at the pupillary margin are generally associated conditions; hence, when there is much adhesion with atrophy of iris root, there is also likely to be a collection of pigment at the pupillary margin.

"*De la Refraction de l'Œil Fort Myope.*" (Ostwalt.)—In the *Rev. Génér. d'Ophth.* we find a most interesting paper from a physiological point of view. The author deals with the question of the amount of refraction change in a myopic eye, brought about by discission of the lens. This is, of course, of special interest at this time, as discission is becoming one of the recognised methods of treatment for very high degrees of myopia. We do not intend to state the views, or rather arguments, of the author; suffice it to say that they seem to us quite satisfactory. He formulates the following laws:—

1. If the lens is the only cause of the myopia, the state of the refraction after discission will vary exactly as would an eye previously emmetropic; that is, it will have a hypermetropia of 12 D from its primary condition before discission.

2. If the myopia has been purely corneal, the hypermetropia of the aphakic eye will be less than that of an eye originally emmetropic by $\frac{1}{3}$ D for each dioptré of the primary myopia.

3. If the myopia has been entirely axial, then we must deduct from the hypermetropia of an eye primarily emmetropic (about 13 D) $\frac{1}{3}$ D for each dioptré of the previous myopia.

This last law he deducts from the fact that if discission is performed on an emmetropic eye, there results a hypermetropia of about 12 D; while an eye myopic to 25 D gives after discission emmetropia.

With these three laws Ostwalt next proceeds to examine several cases that were submitted to discission by Fukala, and finds that most of them are to be explained by axial myopia. The point of greatest importance is that in some he finds the data are only to be explained by supposing the myopia to have been corneal. So far as his researches go, it would appear that lenticular myopia does not exist. The cases are not, however, very numerous, and therefore on this matter we must suspend judgment for a little.

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ORIGINAL ARTICLES.

CELSUS.

[*Bibliographical Demonstration in the Library of the Faculty of Physicians and Surgeons of Glasgow, 3rd March, 1892.*]

By JAMES FINLAYSON, M.D.,

Physician to the Glasgow Western Infirmary and to the Royal Hospital for Sick Children, Glasgow; Honorary Librarian to the Faculty of Physicians and Surgeons of Glasgow, &c.

AT one of our recent meetings here I showed you the writings of Hippocrates,* the date of whose death is fixed about 357 B.C.; and at the following demonstration I took up, as the next greatest name in medical history, the writings of Galen,† who died about 200 A.D. In proceeding now to the works of Celsus, I am going back chronologically, for, as will be shown by and by, there is every reason to believe that Celsus flourished about the very beginning of the Christian era.

Celsus seems to have had in his own time, and he certainly has had during the last three or four hundred years, a great reputation as a medical writer. This reputation is based on the purity of his Latin; on the clearness and conciseness of his style; and on the value of the matter contained in his treatise. Eulogistic epithets have been heaped on him. He

* See *Glasgow Medical Journal*, April, 1892.

† See *British Medical Journal*, 1892, vol. i, pp. 573, 730, 771.

has been called the "Cicero of Medicine," although his concise style has been regarded by many as being rather the reverse of that of the great orator and philosopher, and it has been suggested that the comparison with Cicero should rather be kept for Galen, with his voluminous writings, his controversial spirit, and his personal vanity. The great scholar, Isaac Casaubon, whose notes enrich Almeloveen's edition of Celsus, is alleged to have termed him the "*Deus Medicorum*"*—after which one need surely quote no further praise!

CELSUS ON MEDICAL SECTS.

In order that you may know something of the style of discourse which has evoked so much praise, I will now read to you a few passages from Greive's admirable translation; I quote from the Edinburgh edition of 1814. Although this translation serves perfectly for our present purpose, you must remember that for any critical estimation of the exact meaning of a disputed passage you must have recourse to the revised Latin text edited and collated by Darenberg (Leipzig, 1859).

Here are one or two extracts from his account of the contending sects which then divided the medical world:—

"The chief dispute is, that some alledge an acquaintance with experiments to be only requisite, while others affirm experience alone to be insufficient, without a thorough knowledge of the constitution of bodies, and what naturally happens to them: it will be proper to recite the principal arguments on both sides, that we may the more easily deliver our own opinion upon the question.

[*Rationalists*].—"Those, then, who declare for a theory in medicine, look upon the following things as necessary:—The knowledge of the occult and constituent causes of distempers; next, of the evident ones; then of the natural actions; and, lastly, of the internal parts. They call these causes occult, in which we inquire of what principles our bodies are composed, and what constitutes health, and what sickness. For they hold it impossible that anyone should know how to cure diseases if he be ignorant of

* "*Recentiorum Testimonia.*—Casaubonus Ep. 29, '*Medicorum Deus*'—(Celsus)"; see Milligan's edition of Celsus; also, various editions of Almeloveen's Celsus, and likewise Krause's edition, Lipsiæ, 1766, p. xlii. On looking up this 29th Epistle (to Joseph Scaliger) it is quite clear that Casaubon's "*Deus Medicorum*" is *not* Celsus; probably he referred to Hippocrates, whose confession as to being deceived is eulogised by Celsus in his last book; it will be quoted in this paper later on. The sentence is:—"Appendicem vero tuam ad Cyclometrica, legit nemo eruditorum, quin statim veniat ei in mentem, quod de medicorum Deo Celsus scribit libro ultimo, id in te dici nunc posse."

the causes whence they proceed; and that it is not to be doubted but one method of cure is required, if the redundancy or deficiency in any of the four principles be the cause of diseases as some philosophers have affirmed; another if the fault lie wholly in the humours, as Herophilus thought; another, if in the inspired air as Hippocrates believed; another, if the blood be transfused into those vessels which are designed only for air, and occasion an inflammation, which the Greeks call phlegmone, and that inflammation cause such a commotion as we observe in a fever, which was the opinion of Erasistratus; another, if the corpuscles passing through the invisible pores should stop, and obstruct the passage, as Asclepiades maintained; that he will proceed in the proper method of curing a disease who is not deceived in its original cause. Nor do they deny experience to be necessary, but affirm it cannot be obtained without some theory; for that the more ancient practitioners did not prescribe anything, at hazard, for the sick, but considered what was most suitable, and examined that by experience, to which they had before been led by some conjecture.”—(Book i, Preface, p. 3.)

[*Empiricks.*]—“On the other hand, those, who from experience, stile themselves empiricks, admit indeed the evident causes as necessary; but affirm the inquiry after the occult causes and natural actions to be fruitless, because nature is incomprehensible. And that these things cannot be comprehended, appears from the controversies among those who have treated concerning them, there being no agreement found here either amongst the philosophers or the physicians themselves; for, why should one believe Hippocrates rather than Herophilus? or why him more than Asclepiades? That if a man inclines to determine his judgment by reasons assigned, the reasons of each of them seem not improbable; if by cures, all of them have restored the diseased to health; and, therefore, we should not deny credit either to the arguments or authority of any of them. That even the philosophers must be allowed to be the greatest physicians if reasoning could make them so; whereas it appears, that they have abundance of words and very little skill in the art of healing.”—(Book i, Preface, p. 6.)

The following portion of his summing up of the contending arguments may suffice to show the spirit of Eclecticism which throughout characterises the writings of Celsus—his desire to avoid all extreme views, his attempt at preserving the golden mean, and his readiness to learn from all sides. This feature is as consistent with his character as an Eclectic, as it is with the encyclopædic nature of his works, which embraced the most diverse subjects, as will be explained hereafter.

[*Celsus balancing the Argument.*]—“Since these points have often been, and still continue to be, disputed with great warmth by physicians in large volumes, 'tis proper to add some reflections,

that may seem to come the nearest to the truth, and which neither slavishly follow either of these opinions, nor are too remote from both, but lie, as it were, in the middle, betwixt these opposite extremes: which those that inquire after truth without partiality, may find to be the surest method for directing the judgment in most warm controversies, as well as in this now before us. For, with regard to the causes of health or diseases, in what manner the air, or food, is either conveyed or distributed, the philosophers themselves do not attain to an absolute certainty: they only make probable conjectures. Now, when there is no certain knowledge of a thing, a mere opinion about it cannot discover a sure remedy. And it must be owned that nothing is of greater use even to the rational method of curing, than experience. Altho' then many things are taken into the study of arts, which do not, properly speaking, belong to the arts themselves, yet they may greatly improve them by quickening the genius of the artist; wherefore the contemplation of nature though it cannot make a man a physician, yet may render him fitter for the practice of medicine. Indeed, it is very probable, that both Hippocrates and Erasistratus, and all the others, who were not content with treating fevers and ulcers, but examined in some measure into the nature of things, tho' they did not by such study become physicians, yet became more able physicians by that means."—(Book i, Preface, p. 9.)

SCOPE OF MEDICINE—RULES FOR PHYSICIANS AND SURGEONS.

In proceeding to discuss medicine, Celsus makes a division of the subject into those diseases amenable to treatment by diet, by medicines, and by surgery. In his "eight books" he adheres to this classification, although evidently quite aware that it is artificial, and that certain disorders come under the whole three. Cataract, for example, figures in Book vi, chap. 6, in the division dealing with the use of medicines, and again in the surgical division, in Book vii, chap. 7, where the operative treatment is described. He says:—

"During this period, physick was divided into three parts: the first cured by diet, the second by medicines, the third by manual operations; the first they termed in Greek, *Dietetice*, the second *Pharmaceutice*, and the third *Chirurgice*."—(Book i, Preface, p. 2.)

The meaning of this passage has been much disputed, and without going into the subject, which seems of little importance now, I show you a series of papers by the learned Kühn, in which this subject is discussed at great length—"Opuscula Academica Medica et Philologica collecta aucta et emendata"

(Lipsiæ, 1828, tom. ii, p. 225); "De loco Celsi in Præfat. p. 3. Ed. Targ. Noviss. Male Intellecto Exponitur."*

It seems as if the division were used by Celsus as a matter of literary convenience, and that it implied neither an absolute distinction between the various parts of the subject, nor any actual separation of practitioners into three different classes.

The essential qualifications of a physician are thus sketched:—

[*Requirements in a Physician.*].—"Now, a physician should above all things know, what are incurable, what difficult to cure, and what more easy. For it is the part of a prudent man first, not to undertake one whose case is desperate, lest he appear to have killed him, whom his own destiny has destroyed. Next, in a case of great danger, but not quite desperate, to discover to the friends of the patient, that it is a matter of difficulty: that if the malady should prevail against the art, he may neither seem to have been ignorant himself, nor to have deceived them. But as this is the proper conduct for a prudent person, so on the contrary it is the part of a 'quack' to exaggerate a small matter, that he may appear to have performed the greater cure. Where a case is easy, it is reasonable that the physician by a free declaration of its easiness be obliged to the greater diligence and circumspection; that what is in itself small may not by his negligence become more considerable."—(Book v, chap. 26, p. 219.)

The clause about a physician not undertaking a case which is desperate, illustrates the different moral standard prevailing now, after nineteen centuries of Christian culture; for none of us would venture to express, now-a-days, such ideas in writing, although we may all have felt, at times, a sneaking desire to keep clear of a hopeless case which could bring us no credit.

The following is the well known passage as to the qualities required in a surgeon:—

[*Requirements in a Surgeon.*].—"A surgeon ought to be young, or at most but middle aged, to have a strong and steady hand, never subject to tremble, and be no less dexterous with his left hand than his right hand; to have a quick and clear sight; to be bold, and so far void of pity, that he may have only in view the cure of him, whom he has taken in hand, and not in compassion to cries either make more haste than the case requires, or his cut less than is necessary; but to do all, as if he was not moved by the shrieks of his patient."—(Book vii, Preface, p. 309.)

* See also Daremberg, who criticises Kühn: *Histoire des Sciences Médicales*, tome i, p. 194. Paris, 1870.

Celsus, although versed in philosophy and rhetoric, and himself an encyclopædic writer, was evidently able to see that in a practical art like medicine, something more than words and arguments is essential. He says, in discussing the sect of the rationalists:—

[*Diseases not Cured by Eloquence.*].—"That these things are known by experience; that in all disputes of this kind, a good deal may be said on both sides; and therefore genius and eloquence obtain the victory in the dispute; but diseases are cured not by eloquence, but by remedies; so that if a person without any eloquence be well acquainted with those remedies that have been discovered by practice, he will be a much greater physician than one who has cultivated his talent in speaking without experience."—(Book i, Preface, p. 8.)

Our author had also apparently acquired some knowledge of human nature and likewise of sick human nature, in various phases of life. The remarks which follow show that like Hippocrates (Aphorisms i, 1) he had gathered that the physician to be successful must know how to control attendants and external circumstances as well as the disease and the patient. Speaking of dropsy, he says:—

[*Treatment Influenced by Status and Disposition of Patients.*].—"It is more easily cured in slaves than in free people; because it requires fasting, enduring of thirst, and a thousand other hardships, and long patience. Such are more readily relieved, that are easily commanded, than those whose liberty is hurtful to them. But even those, that are under the authority of another, if they cannot entirely command themselves, are not to be recovered. And upon this account no inconsiderable physician, a disciple of Chrysippus, residing with King Antigonus, declared that a certain friend of that prince, of known intemperance, though not very ill of this disease, could not possibly be cured; and when another physician, Philip of Epirus, undertook to cure him, he answered, that the other considered only the distemper of the patient; he his dispositions. And he was not deceived; for although he was watched with the greatest diligence, not only by the physician, but even by the king too, yet by devouring his malagmas [emollient applications] and drinking his own urine, he quickly killed himself."—(Book iii, chap. 21, p. 125.)

MAXIMS AND SENTENCES.

These quotations, in an English translation, may suffice to show you the style in which the author deals with his subjects. But you may gather some better idea of the conciseness and elegance of his composition from the following Latin sentences.

In his admirable edition of Celsus, M. Védrenes collects a group of short sentences or maxims culled from passages occurring throughout the whole range of the treatise. This selection occupies some three pages; but I have only picked out a few of these as specimens, appending M. Védrenes' translations. You must remember that they are not, like the Aphorisms of Hippocrates, passages standing by themselves:—

"Et causæ quoque estimatio sæpe morbum solvit."—(Lib. i, Procem.)

"L'appréciation de la cause du mal met souvent sur la voie du remède."

"Ideoque, quum par scientia sit utiliore tamen medicum, esse amicum quam extraneum."—(Lib. i, Procem.)

"A mérite égal, mieux vaut pour médecin un ami qu'un étranger."

"Succurrendumque semper parti maxime laboranti est."—(Lib. i, cap. 3.)

"Il faut toujours venir en aide à l'organe qui souffre le plus."

"Nec protinus crimen artis esse, si quod professoris sit."—(Lib. ii, cap. 6.)

"Il ne faut pas se hâter de charger l'art des fautes de l'artiste."

"Asclepiades officium esse medici dicit, ut tuto, ut celeriter, ut jucunde curet."—(Lib. iii, cap. 4.)

"Asclepiade dit que le médecin doit guérir d'une manière sûre, prompte, et agréable."

"Fere quos ratio non restituit, temeritas adjuvat."—(Lib. iii, cap. 9.)

"La témérité réussit souvent, là où la prudence échoue."

"Histrionis est, parvum rem attollere, quo plus præstitisse videatur."—(Lib. v, cap. 26, 1.)

"Il n'appartient qu'à un charlatan d'exagérer la gravité d'un mal insignifiant, pour se donner plus d'importance."

"Dubia spes certa desperatione est potior."—(Lib. vii, cap. 16.)

"Mieux vaut se rattacher à une lueur d'espérance, que de renoncer à tout espoir."

"Incidere autem vivorum corpora, et crudele et supervacuum est; mortuorum discentibus necessarium."—(Lib. i, Procem.)

"L'ouverture des corps vivants est une action inutile et cruelle; mais celles des cadavres est nécessaire aux élèves."

VIVISECTION.

The last sentence might in modern times be supposed to refer to experiments on the lower animals, the word "vivorum"

being, in itself, ambiguous. There is, however, little doubt that Celsus really referred to dissections of living men, and that it is this which he condemns. It is another evidence of the change of sentiment which has occurred since the Christian era that such a matter should have been supposed to be open for discussion. The argument in favour of it is thus given:—

[*Dissection of Criminals Discussed*].—"As pains, and various other disorders, attack the internal parts, they believe no person can apply proper remedies to those which he is ignorant of; and, therefore, that it is necessary to dissect dead bodies, and examine their viscera and intestines, and that Herophilus and Erasistratus had taken far the best method for attaining that knowledge, who procured criminals out of prison, by royal permission, and dissecting them alive, contemplated, while they were even breathing, the parts which nature had before concealed, considering their position, colour, figure, size, order, hardness, softness, smoothness, and asperity. . . . And that it is by no means cruel, as most people represent it, by the tortures of a few guilty, to search after remedies for the whole innocent race of mankind in all ages."—(Lib. i, Preface pp. 5, 6.)

The opposite argument refers to the various chances which offer, through accidents to gladiators and robbers, of learning the condition of internal parts without any such proceedings.

"And thus a prudent physician finds their situation, position, order, figure, and the other particulars he wants to know, not perpetrating murder but attempting to give health; and learns that, by compassion, which others had discovered by horrid cruelty. That for these reasons it is not necessary to lacerate even dead bodies; which though not cruel, yet may be shocking to the sight."—(Lib. i, Preface p. 9.)

Celsus keeps, as usual, to the middle course; and the soundness of his own decision, in the Latin sentence quoted, will be endorsed by all here without its being felt that there is room for a doubt.

PARALLEL PASSAGES FROM HIPPOCRATES.

Celsus, as an encyclopædist, was bound to take account of Hippocrates and his writings, and throughout his treatise many references to Hippocrates occur, and many passages may be regarded as being rendered into Latin from the Hippocratic writings. The following, for example, is his rendering of the celebrated description of the "*Facies Hippocratica*":—

"But we are sure a person is come to the last stage when the nose is sharp, the temples shrivelled, the eyes hollow, the ears cold, and languid, and slightly inverted at their extremities, the skin about the forehead hard and tense, the colour either black or very pale; and much more so if these things happen without any preceding wakefulness, or purging, or fasting."—(Lib. ii, cap. 6, p. 43.)

An interesting reference to Hippocrates occurs in connection with the sutures of the skull:—

"Hippocrates has recorded, that he was himself deceived by the sutures. This is the custom of great men, who have a just consciousness of their own superior abilities; for little minds because they are deficient in everything, never allow themselves to be deficient in any. An ingenuous confession of an error is worthy of a great genius, who will have enough besides to entitle him to esteem; and it is especially laudable in a practical art, which is handed down to posterity for their benefit; that they may not be deceived in the same way another was deceived before them. A regard to the memory of a professor in other respects so great a man, led us into this digression."—(Lib. viii, cap. 4, p. 394.)

The similarities of certain portions of Celsus to the Hippocratic writings are so numerous and important, that some editors have given references to parallel passages—as in Daremberg's edition, which is now regarded as the best we have of the Latin text; his references to these passages are arranged in columns, and occupy no less than five pages.

PERSONALITY AND DATE OF CELSUS.

We may now proceed to enquire—Who was this Celsus so much studied and praised? First, then, I would have you understand that he was NOT the Celsus who wrote against Christianity, and who is so well known from Origen's reply. I show you a copy of Origen's "*Contra Celsum*," with the Greek and Latin text. Of course, if we are correct in saying that our Celsus lived at the beginning of the Christian era (and the margin of possible error in the date is not great), it is clear that he could not write against Christianity; the Celsus who did so (whose book is lost except in so far as embodied in Origen's reply) lived in the time of the Antonines—say, about 200 A.D.

Of the date of our Celsus we have some indications in his own writings. In the preface to his first book he says:—"Themison, one of his successors (*i.e.*, of Asclepiades), has also,

lately, in his old age, departed from him in some things" (p. 3); and again, in the same place, he speaks of "the late Cassius" as "the most ingenious physician of our age" (p. 14). The dates of these two physicians are perhaps still involved in some doubt; but, from what is known of them, and from the way Celsus is quoted by Columella in his treatise *De Re Rustica*, it has been generally concluded that he must have flourished about the end of the Augustan period. Celsus is also quoted by Pliny (Lib. xx, cap. 4, and elsewhere), whose *Natural History* was completed some time before his death in A.D. 79. Juvenal, too, who wrote about the year A.D. 100, undoubtedly refers to our Celsus as an authority on Rhetoric:—

"Componunt ipsae per se, formantque libellos,
Principium atque locos Celso dictare paratae."

—(Sixth Satire, 244-245.)

References to Celsus have been sought for in classical writers* of the Augustan period, and it has been supposed that Ovid, in the epistle to Maximus, refers to the death of our Celsus:—

"Quae mihi de rapto tua venit epistola Celso
Protinus est lachrymis humida facta meis."

—(*Epistolae ex Ponto*, Lib. i, 9.)

Horace, also, has been quoted as referring to our Celsus in the following passage, where he warns him against appropriating too much from the manuscripts in the libraries:—

"Quid mihi Celsus agit? Monitus multumque monendus
Privatas ut quaeret opes et tangere vitet
Scripta Palatinus quaecunque recepit Apollo."

—(Epist. i, 3.)

There seems, however, great doubt as to this Celsus being our author. It has been supposed that he was rather the same to whom Epistle 8, in the same book, is dedicated—"Ad Celsum Albinovanum," in all probability a distinct personage from A. Cornelius Celsus.

The name of Celsus, although often given in MSS. and printed editions as Aurelius Cornelius Celsus, is now generally supposed to be Aulus Cornelius Celsus on the authority of a MS. in the Vatican; one old edition by Aldus, Venice, 1528, is said by Le Clerc† to give it in this form, but this has been

* Compare in *Smith's Dictionary of Greek and Roman Biography*, vol. i, London, 1870, the articles on "Celsus, A. Cornelius;" "Celsus Albinovanus;" "Celsus Apuleius."

† *Histoire de la Médecine*, Amst., 1723, p. 517.

shown to be an error, although some manuscript entry of the name as Aulus is said to occur in some special copy of that edition.*

The "Life" of Celsus which is usually appealed to is that by Rhodius. It is appended to his treatise, "*De ponderibus et mensuris veterum medicorum inprimis Cornelii Celsi*" (Hafniæ, 1672). This "Life" is prefixed to Almeloveen's edition of Celsus, and a translation of this life is given in Lee's edition, as well as the Latin text.

The Epistles of Morgagni on Celsus are likewise important, from the biographical point of view, although much the greater portion of them is taken up with a discussion of certain parts of the treatise itself. The Morgagni epistles are eight in number:—"A. Cornel. Celsus et Q. Serenus Samonicus de Medicina Alter, ut ab Almeloveenio editus est A. 1713. Alter, ut a Constantino A. 1566. Editio novissima, in qua ad cætera omnia quæ in priore nostra, Epistolæ sex accedunt Cel. Jo. Bapt. Morgagni nunquam antea vulgatæ."—(Tomus secundus, Patavii, 1750.)

WAS CELSUS A PROFESSIONAL PHYSICIAN AND SURGEON, OR MERELY AN ENCYCLOPÆDIST?

In view of the great reputation which Celsus has deservedly had for the last four centuries, and of his reputation in his own time, his writings on various subjects being referred to by Pliny, Juvenal, Quintilian, Columella, &c., it is a most startling fact that he seems never to be quoted or mentioned by either the Latin or Greek physicians in the numerous works on medicine issued after his time. An attempt, indeed, has been made to trace him as the author of a prescription given by Galen under the heading, "*Ad dysentericos, coeliacos et hæmoptoicos, e Cornelio medico*" (*De compositione medicamentorum secundum locos*, Lib. ix, Kühn, vol. 13, p. 292), but this solitary reference in Galen's voluminous works would be itself very striking, even if we could suppose, as seems most unlikely, that the "Cornelius" mentioned by him is our Celsus.

Another passage has been quoted from Scribonius Largus, where Celsus is referred to in connection with some remedy:—"Hoc medicamentum Apulei Celsi fuit, præceptoris Valentis & nostri & nunquam ulli se vivo cōpositionem ejus dedit, quodd magnam opinionem ex ea traxerat." (*De compositionibus*

* See Choulant (L.): *Prodromus novæ editionis Auli Cornelii Celsi*, Lipsiæ, 1824, p. 15.

medicamentorum, 94.) This allusion to Celsus as the teacher of Scribonius Largus, and the possessor of a secret remedy, is extremely unlikely to refer to our Celsus, who seems nowhere else to be referred to with the adjective here attached to his name.

The absence of the name of Celsus from the writings of those physicians who flourished after his time, most of whom compiled freely from the works of their predecessors, is satisfactorily explained on the theory that Celsus was not one of their class—was not himself a physician, but a cyclopædic *littérateur*, whose range of subjects happened to include medicine and surgery. Why should professional physicians quote from the works of a literary compiler when they themselves had the authorities available, from whom he compiled? That Celsus was an encyclopædic writer we know. His work on medicine bears on its face, in some of its editions, the fact that it is a continuation of a more general scheme. In Daremberg's text, now usually regarded as the best, we find the heading runs, "A. Cornelii Celsi Artium Liber Sextus idem Medicinæ Primus."

The previous five books were upon agriculture. Of the existence and value of these we have complete evidence in the references to Celsus by Columella* in his own treatise on this subject. Indeed, we do not need to go beyond the extant writings of Celsus to prove the existence of this work, for his opening sentence shows how the one treatise runs into the other:

"As agriculture promises food to the healthy, so medicine promises health to the sick."

And again, in Book V, Cap. 28, speaking of remedies for scabies in the human subject, he recommends

"sulphur mixed with liquid pitch, as I prescribed for cattle."

The writings of Celsus extended, however, to Rhetoric† also, and the passage from Juvenal, already quoted, shows how his name was freely used as that of a master in the subject, teaching his readers how to frame an exordium or

* Some of these extracts from Columella are prefixed to Milligan's edition of Celsus. See also "Scriptorum rei rusticæ veterum Latinorum Tomus secundus, L. Junium Moderatum Columellam tenens." Lipsiæ, 1794.

† There is indeed a fragment published by Fabricius: "Bibliotheca Latina" (tom. ii, Hamburgi, 1721, pp. 759-773). "Aurelii Cornelii Celsi Rhetoris vetustissimi et clarissimi, de arte dicendi libellus, primum in lucem editus curante Sixto à Popma, Phrysio, (Colonis exudebat Joannes Rotæus A. 1569)."

"principium." Further, we know that he wrote on war also.* We have thus "*De re rustica*," "*De re medica*" (as his treatise on medicine is often entitled), and "*De re militari*;" all this in addition to *Oratory* or *Rhetoric*.

We can now see why the first book of his treatise on medicine begins as "*Artium Liber Sextus*"—medicine coming in as the second division of his cyclopædic work which embraced at least four separate subjects of whose existence we know; and it was probably designed to be ultimately even more extensive.

In this view of his writings, we cease to think of Celsus as being an expert in medicine alone, or even in combination with rhetoric or philosophy—a combination which would be quite intelligible. If his special treatise on Medicine is to be regarded as proof of his being a physician, for similar reasons we should have to call him also a farmer, a warrior, and a teacher of rhetoric—a combination which has been universally regarded as absurd. On the other hand, in view of his literary graces, we might quite expect him to excel as an impartial exponent of the doctrines and literature of all these subjects. No one calls Virgil a farmer or a professional bee-keeper because he wrote poems on agriculture and bees; nor does any one suspect Pliny of being a physician because, in his *Natural History*, he wrote of diseases, and furnished prescriptions for their cure. At that time Medicine was regarded as a branch of general knowledge and culture, in which all educated men might take a certain interest. When dealing with the works of Galen, I showed you a figure on the title page of a Latin edition (Basle, 1562) representing Galen giving an anatomical demonstration, with certain philosophers and high state officials amongst his audience; these he names in his writings. So far as this goes, therefore, there is no difficulty.

Many have contended, on the other hand, that the work of Celsus shows such minute knowledge of details that it is impossible for us to suppose it to have been written by a mere literary compiler. The same, however, might be said about Virgil and his description of bees. That Celsus had personal knowledge of the practice of medicine and surgery seems beyond doubt; but the same might be said of Cato and Pliny, who had the greatest contempt for the professional physicians. This contempt was very wide-spread in ancient Rome.

* See "*Fl. Vegetii Renati viri illustris de re militari libri quatuor*" (Lutetiae, 1532). In Milligan's edition of Celsus there is a sentence quoted from this work.

I will read you the following extract from Pliny's *Natural History*, using Holland's translation (London, 1634). After quoting an epistle of M. Cato, who abuses the Greeks as a nation, he adds—

"but let them send once their Physitians hither, you shall see a greater wrecke and condition thereby. For I assure you they have complotted and sworne one to another, for to murder all Barbarians by means of their Physicke. And even to effect and bring this about, they will be fed also and take money."

Pliny then goes on to draw a distinction between objecting to Physicians and objecting to Physic:—

"Are wee to judge and beleeve that he [Cato] condemned thereby a thing so necessary and profitable as Physicke is? God forbid; for himselfe setteth downe a little after, what Physicke, and what medicines both he and his wife were acquainted with, and by meanes whereof they came to be so aged as they were." . . .
 "One word I will speake to the honour of our Romanes for their singular wisdom and providence, namely, that howsoever they are growne to good prooffe and be accomplished in al other Arts and Professions of the Greeks, yet their gravity hitherto hath bin such, as they would not give themselves to the practice of this only science. And notwithstanding the exceeding wealth that accrueth by Physicke yet very few or none of our naturall Roman citizens have medled therewith."—(Lib. xxix, cap. 1).

In connection with this subject, I show you "A Dissertation on the state of Physicians among the old Romans, in which it is proved to have been servile and ignoble: against the assertions of the celebrated Dr. James Spon and Dr. Richard Mead. Translated from the Latin of Dr. Conyers Middleton, Chief Librarian to the University of Cambridge" (London, 1734). Likewise a rejoinder to the Rev. Doctor, entitled "Remarks on Dr. Conyers Middleton's Dissertation. Translated from the Latin of P. W., M.D." (London, 1734.) In these pamphlets the subject is discussed in great detail and with great learning. The conclusion, on a dispassionate survey, seems to be irresistible that in Rome, at that time, the profession of medicine was far from being regarded as an exalted one; it seems to have been largely in the hands of slaves and freedmen.* From the second pamphlet I quote the following extract from Cicero:—

* Dr. Greenhill, however, adduces special cases of Physicians in Rome occupying a high social position; see his Art. "Medicus" in *Smith's Dictionary of Greek and Roman Antiquities*.

"Neither can I approve of those Trades that purvey for men's luxury, as Fishmongers, Butchers, Cooks, &c., as Terentius says; to which you may add, if you please, Perfumers, Dancing-masters, and those who supply us with Dice or Cards. But Arts which have something of Knowledge and Skill in them, and those which are useful for the Publick, such as Physick, Architecture, or the Instruction and Education of Youths in good manners, these are commendable in those whose condition is suited for such employments."—(De Officiis i, 42.)

This qualified approval of the medical profession for *those whose condition is suited for such employments*, probably gives us as correct a view of the estimation in which medicine was held as anything which can be adduced.

While the practice of medicine, for gain, was viewed with suspicion (and all the more for that very reason), there was a large field for the practice of the art by those who had taken pains to acquire the necessary knowledge, in dealing with the large body of slaves, servants, dependents, and friends attached to a great man's household. The public spectacles, the wounds of the gladiators, and the concourse of people at the baths, led naturally to various opportunities for practice; and, no doubt, the regular professional physicians and surgeons at that time, as in Galen's, gave lectures and performed operations in public. In this way, therefore, it was possible for Celsus to gain by experience and observation the practical knowledge which enabled him to utilise his reading to the utmost extent.

There has, perhaps, been a tendency to magnify somewhat unduly the excellence of Celsus in practical surgery.* Part of his outstanding superiority may depend on his having had access to the works of various predecessors which have been completely lost. In Celsus we find numerous references to Herophilus, Erasistratus, Asclepiades, and others, whose works have entirely perished, or been preserved in fragments or in quotations only. But although his references to these writers are numerous, he may very naturally have omitted to refer to them or to others for what seem to us important matters, but did not seem to him to require such reference, just because they were well known. The curt way in which he speaks of the ligation of vessels, for example, would seem to indicate that it was no novelty. Apparently the Alexandrian school had

* One need not go so far in the opposite direction as the writer in "*Recherches critiques et historiques sur l'origine et sur les progrès de la chirurgie en France*," [Quesnay?] Paris, 1744, p. 307; "qu'en lisant Celse ils se livrent à des transports d'admiration; le langage de cet Ecrivain les séduit; il n'avoit pas trompé de même Quintilien qui en pouvoit mieux juger. Selon lui, Celse est un auteur médiocre, un petit génie," &c.

attained great distinction in practical anatomy and in surgery, but the works of that school have almost wholly perished. Celsus wrote at a time when the Alexandrian school was a living influence, and when the works emanating from it were extant.

The question as to whether Celsus was a professional physician and surgeon has been already mentioned, and some of the data available for forming a judgment have been discussed. There has, indeed, been a hot dispute on this point, and names of great authority have been ranged on each side. I show an old pamphlet in which this is the only point taken up—Eschenbach (M. C. J.): “*Epistola*,” &c.—“*De Celso non Medico Practico disseritur*” (Lipsiæ, 1772).

Some have sought to decide the question from the text of Celsus himself, and they say he betrays himself as a regular practitioner in such a phrase as—

“*Ob hæc ad mediam noctem decurro.*”—(Lib. iii, cap. 5.)

There is, indeed, no doubt that he expresses again and again personal opinions on the relative value of methods and remedies. Thus—

“*Ego ubique, si satis virium est, validiora : si parum, imbecilliora auxilia præfero.*”—(Lib. iii, cap. 24.)

Again—

“*Asclepiades multarum rerum, quas ipsi quoque sequuti sumus,*” &c.—(Lib. iv, cap. [ix] 4.)

But all these expressions of individual opinion on the part of Celsus are perfectly consistent with the idea of his practising as a highly cultivated amateur; and against the above quotations the other side can adduce the following, which certainly does not look like the expression of a professional physician. Even at the present time most of us, whatever we might think, would seek to tone down such expressions before publishing them!—

“From these things it may be inferred that many people cannot be attended by one physician; and that the man to be trusted is he that knows his profession and is not much absent from the patient. *But they, that practise only from views of gain*, because their profits arise in proportion to the number of patients, readily fall in with such rules, as do not require close attendance.”—(Lib. iii, cap. 4, p. 93.)

The phrase as to practising from views of gain tells strongly against the idea that this is the utterance of a “professional” himself.

Another branch of the argument depends on the references by Pliny to Celsus. In the table of the contents of the various books of his *Natural History*, Pliny gives lists of the authors to whom he is indebted, and Celsus figures there again and again as I show you. It is pointed out that Pliny has three groups of authors—"Ex autoribus," "Externis," "Medicis," and that Celsus never appears amongst the last. On the other hand, it is argued that he is properly enough included among the Latin authors, and that this list contains some definitely named as physicians (see Lib. xxviii), and some others known to be such, so that the absence of Celsus from the list of physicians counts for nothing.

The most ingenious and amusing argument in favour of Celsus being a physician is based on the passage in which Quintilian refers to Celsus. This has often given offence to the admirers of our author, as he is there described as a man of mediocre ability, although really no disparagement seems to be meant, as the comparison is with names of the very highest rank of intellect. The passage is

"Quid plura? cum etiam Cornelius Celsus mediocri vir ingenio, non solum de his omnibus conscripserit artibus, sed amplius rei militaris, et rusticæ etiam, et medicinæ præcepta reliquerit."—(Quintilian, *Inst. Orat.*, xii, 11.)

An ingenious scholar has sought to redeem Celsus from this slur of mediocrity, and to claim him for our profession by reading, instead of

Cornelius Celsus mediocri vir ingenio,
Cornelius Celsus med. [= medicus] acri vir ingenio ;

by this emendation he becomes, at one stroke, both a practising physician and a man of acute intellect!*

SPECIALTIES IN CELSUS—WEIGHTS AND MEASURES.

The quotations already made from Celsus have all been of a somewhat general character, but a few special points in his writings call for some illustration and discussion.

* For an account of this (which seems first to have been given by M. Goulin—"Mémoires littéraires et critiques," &c., Paris 1775), see Eloy's *Dictionnaire Historique de la Médecine* (Mons, 1778), Art. "Celse"; also *Encyclopédie des sciences médicales—Biographie Médicale*, (Paris, 1840), Art. "Celse." It does not appear that any editor of Quintilian has printed this emendation; but it is said to have been taught orally, and that it is entered in MS., in his own copy, by the nephew of Capperonius the editor of Quintilian.

One of these is the subject of weights and measures in the prescribing of remedies. In some portions of his book, prescriptions are very numerous, and many of the editors of his treatise devote considerable space to the elucidation of the relative value of his weights, supplying also tabular comparisons to aid in the understanding of the prescriptions. Milligan also gives tables showing the modern synonyms for the drugs. Notwithstanding all the labour and ingenuity expended, grave difficulties still remain in constructing equivalent formulæ.

The following is the statement by Celsus himself:—

"Before I proceed, I would have it understood that in an ounce is contained the weight of seven denarii. Next that I divide each denarius into six parts, that is sextantes, so that I have the same quantity in the sextans* of a denarius, that the Greeks have in their obolus. That being reduced to our weights makes a little more than half a scruple."—(Lib. v, cap. 17, p. 193.)

The first elaborate discussion of the Celsian system of weights occurs in the treatise by Rhodius, bound up in this edition shown to you, with his dissertation "*De Acia.*" "*Jo. Rhodii De Ponderibus et Mensuris veterum medicorum inprimis Cornelii Celsi Dissertatio posthuma in lucem protracta à Th. Bartholino*" (Hafniæ, 1672).†

The following are the most important symbols:—

P. stands for "*pondo*" (indeclinable), and means "by weight," when occurring before other symbols of weight.

P. standing alone, means 1 pound or 12 ounces.

X or $\frac{X}{\lambda}$ is for the denarius (equal to 10 small asses, hence the symbol); but in copying, this **X** may be confused with the mark for ten denarii.

)-(. is for the denarius; the number ordered is indicated by the numbers affixed.

Z or **=** or $\frac{Z}{6}$ is for a "*sextant*" or one-sixth part of a pound (2 ounces).

ZZ or **= =** means two "*sextants*" or one-third of a pound.

— means half of a "*sextant*" (1 ounce).

S means one-half.

* The "*sextans*" or sixth part varies in its value in a prescription according to its exact position, relatively to preceding symbols—whether the sixth of a pound or the sixth of a denarius.

† A poem on this subject is included in the edition of Celsus and Serenus, published at Patavium in 1750, vol. ii: "*Q. Rhenii Fannii Palæmonis de Ponderibus et Mensuris.*"

The equivalents in English apothecaries' weights are thus given by Dr. Greive:—

1 pound	=	10 ounces 6 drachms 2 scruples and 11 grains.
1 ounce	=	7 drachms and 14 grains.
1 denarius	=	1 drachm and 2 grains.
1 cyathus	=	$\frac{1}{16}$ th of an English pint.

I quote a formula from Daremberg's edition (Lib. v, cap. 19, p. 173), to show you how a prescription reads in genuine classical Latin. It is "Philotas' plaster" for a broken skull:—

"Philotæ compositio habet terræ eretriæ, chalcitidis, singulorum p.)-(iv. myrrhæ, æris combusti, singulorum p.)-(x. ichthyocollæ p.)-(vi. æruginis rasæ, aluminis rotundi, misy crudi, aristolochiæ, singulorum p.)-(viii. squamæ æris p.)-(x. turis masculi p.)-(ii. ceræ * p. i. rosæ, et olei acerbi ternos cyathos, aceti quantum satis est, dum arida ex eo conteruntur."

The following is Dr. Greive's rendering of this into modern weights (see Preface):—

		℥	℥	℥	gr.
Of Eretrian earth,					
— Chalcitis,†	each	$\frac{1}{2}$	0	0	8
— Myrrh,					
— Calcined copper,	each	1	2	1	
— Isinglass,			6	0	12
— Rasile verdigrease,					
— Round allum,					
— Crude misy,†					
— Birthwort,	each	1	0	0	16
— Male frankincense,			2	0	4
— Oil of roses,					
— Bitter oil,	of each three cyathi or one quartarius = between $\frac{1}{4}$ and $\frac{1}{2}$ of an English pint.				
— Vinegar,	a sufficient quantity [for rubbing down all the dry ingredients].				

SURGERY AND SKIN DISEASES.

It is in the realm of surgery and surgical operations that the reputation of Celsus stands relatively highest. As already hinted, this may be due in part to his having had access to

* This is omitted in Greive's translation of the formula; in Védrenes' edition it appears as "ceræ p.)-(i."

† Both of these are copper ores.

Alexandrian surgical writings, since lost to the world. In speaking of the surgery of Celsus in this eulogistic manner, we may fairly enough include the group of external affections termed skin diseases.

A very important series of three papers on the surgery of Celsus appeared in the *Gazette Médicale de Paris* for 1847, from the pen of Daremberg: "Études sur quelques points de la chirurgie de Celse à l'occasion de la nouvelle édition de M. le docteur Des Étangs." In these papers, and in various editions of Celsus, some representations of old surgical instruments from the excavations of Pompeii, &c., are reproduced, in illustration of certain passages by Celsus bearing on surgical operations. Indeed, in various old editions of Celsus representations of cupping instruments are given to illustrate the "*Cucurbitulæ*" of which he speaks. In Milligan's edition a few other things are also figured. Kühn took up the subject in 1823: "*De instrumentis chirurgicis, veteribus cognitis, et nuper effossis*" (see *Opuscula academica medica et philologica*, tom. ii, Lipsiæ, 1828, pp. 306-319). All previous attempts, however, to illustrate the surgery of Celsus in this way have been far excelled by the elaborate illustrations now shown you in Védrenes' edition. There are no less than 14 plates, with over 100 figures, drawn from the various available collections of ancient surgical instruments and appliances, showing also special appliances for oculists with their seals, names, &c.

The treatment of the subject of skin diseases by Celsus has been taken up by Sir Erasmus Wilson in two elaborate papers in the *British Medical Journal* for 24th October, 1862, "On the Dermo-Pathology of Celsus." I must refer you to these papers for any detailed information on the subject, the extent of which may be gathered from his statement that Celsus "enumerates between forty and fifty cutaneous affections." But I cannot omit reminding you that the disease termed "*Alopecia areata*" is known, under one of its synonyms, as *Area Celsi*.

ACIA AND FIBULA—INFIBULATION.

Another special point in Celsus is the meaning of the words *Acia* and *Fibula*. Rhodius has discussed this in a long dissertation of some 220 large pages: "*Joannis Rhodii DE ACIA Dissertatio ad Cornelii Celsi mentem qua simul universa Fibulæ ratio explicatur*" (Hafniæ, 1672). In this dissertation he goes into the subject with great minuteness, and gives references and also numerous figures in illustration. It is

generally supposed that *Acia** refers to a thread for the interrupted suture. *Fibula* is usually construed in Latin as meaning a buckle, or brooch, or pin; some have thought it was used by Celsus as meaning a metal form of suture; some think he means a thread. Celsus refers to the process of "Fibulation" or "Infibulation," by which the prepuce was carried forward and fixed. This has been supposed by some to have been effected by metal pins or buckles; by others it is thought to have been managed by an interrupted thread or wire suture. The operation was performed apparently for several different reasons.† Dr. Greenhill refers to this operation being practised for its influence on the voice of singers (see Art. "*Chirurgia*" in *Smith's Dictionary of Greek and Roman Antiquities*).

I may here mention another operation on these parts, which is thus referred to:—

"If the glans be bare, and a person chuses for the sake of decency to have it covered, that may be done; but more easily in a boy than a man, and more easily in one, to whom it is natural, than in another, who according to the custom of some nations has been circumcised."—(Lib. vii, cap. 25, p. 360).

This operation is evidently the same as the one referred to in the New Testament: "Was any man called being circumcised? let him not become uncircumcised" (1 Cor., vii, 18). One might be at a loss to consider why Celsus, or others in his time, should have had occasion to deal with such requests; but, it has been explained that, then as now, Jews were not regarded with favour by some governments, and that taxes, imposed on their nationality, might lead them to try to evade recognition by surgical operation (*Fiscus Judaicus*).

HERNIA—LITHOTOMY—LITHOTRITY.

A general feeling seems to have existed amongst the Romans as to the indecency of certain words, and Celsus intimates his preference, on this account, for the Greek names for certain parts; this we can understand, in view of the obscene

* This word occurs only once; Lib. v, cap. 26, § 23.

† "Infibulare quoque adolescentulos interdum vocis, interdum valetudinis causa, quidam consueverunt" (Daremberg's edition, Lib. vii, cap. 25, p. 306). The words "interdum vocis" were omitted from some texts. There is an article by X., in *L'Union Médicale* for 1847, i, pp. 609-611, but I have not been able to see it; the title is "De l'usage de l'infibulation dans l'antiquité et dans les temps modernes."

language of many of the Latin poets. It seems curious to us, however, to read—

“The Greeks call these enterocele and epiplocele; with us an indecent but common name for them is hernia.”—(Lib. vii, cap. 18.)

This, indeed, is the solitary occasion on which Celsus uses this word, as I show you in the elaborate “Index Verborum” in Milligan’s second edition, *where all the words are indexed*. It would seem as if some special shame attached itself, in Roman minds, to the disease as well as the word; and probably its existence was often concealed, as far as might be, by those so affected. The name was used to cover a wider range of diseases in that region of the body than in modern times.

The practice of lithotomy, you may remember, was proscribed by Hippocrates in his OATH, and so of course no description of it occurs in his writings. In Celsus, however, an elaborate description is given of the operation as practised apparently by the Alexandrian surgeons, and as copied by them, it is alleged, from Indian practitioners.* The fingers, introduced into the rectum, pressed forward the stone towards the perineum, where it was cut out by incisions, the exact description of which has given rise to some controversy. I will not take up time by quoting his description of this operation, but some reference must be made to cutting or breaking the stone in the bladder when too large for extraction. This was allied to *lithotritry*, as we should say, although strictly *lithotomy*, as Celsus calls it. This point is discussed by Kühn in his “*Opuscula Academica Medica et Philologica*,” tom. ii, Lipsiæ, 1828, p. 191-224—“*Commentatio in Celsi Libr. vii, c. 26, De Calculi Sectione.*” Celsus says—

“In case the stone appears so large, that it cannot be extracted without lacerating the neck, it must be split. The author of this contrivance was Ammonius, who upon that account was called *Lithotomus* (the stone cutter). It is done in this manner. A crotchet is fixed upon the stone with so sure a hold as to prevent it from recoiling inward; then an iron instrument of moderate thickness, with a thin edge, but not sharp, is made use of. This is applied to the stone, and being struck on the other side cleaves it; great care being taken that neither the instrument come to the bladder, nor anything fall in by the breaking of the stone.”—(Lib. vii, cap. 26, p. 367.)

* See *Encyclopædia Britannica*, ninth edition, Art. “Surgery.”

AMPUTATION—LIGATURES.

As regards amputation, I can refer you to Sir Joseph Lister's article on "Amputation," in *Holmes' System of Surgery* (vol. iii, London, 1862); and as he had evidently studied our author with great care, I will give the short description published by this distinguished surgeon, while he was professor of surgery in our University here:—

"On the other hand, Celsus who seems to have lived at the commencement of the Christian era, advised that the removal of gangrenous limbs should be effected between the dead and living parts and so as rather to take away some of the healthy textures than leave any that were diseased; and as he interdicted amputating through an articulation, his operations must often have been performed through sound tissues. He directed that the soft parts should be divided with a knife down to the bone, and then dissected up from it for some distance, so as to allow the saw to be applied at a higher level. The rough surface of the sawn bone was then to be smoothed off, and the soft parts, which, as he tells us will be lax if this plan be pursued, were to be brought down so as to cover the end of the bone as much as possible. This method seems calculated to afford good results; particularly as it appears probable from his writings that Celsus employed the ligature for arresting hæmorrhage after amputation, and dressed the stump in a manner favourable to the occurrence of primary union."

In connection with such operations, and also in connection with the use of ligatures,* the descriptions by Celsus have great historical value. The way in which these occur, as if alluding to an everyday occurrence, seems to prove conclusively that there was nothing special or original in their use, so far as Celsus was concerned. The Alexandrian schools of physiology and surgery had, no doubt, rendered their pupils familiar with their use. On the other hand, the silence of the physicians, who wrote after the time of Celsus, regarding the works of our author, may account, in part, for this important subject dropping out of notice till revived by Ambroise Paré in the sixteenth century. The great French surgeon, speaking of the ligature, says it was—

"taught me, as I interpret it, by the suggestion of some good angel. For I neither learned it of my masters nor of any other

* Sir Joseph Lister, in an elaborate foot-note, contends that the use of ligatures was intended by Celsus to apply to cases of amputation as well as to the treatment of other wounds.

man.”—(See Rhead, *An explanation of the fashion and use of three and fifty instruments of Chirurgery. Gathered out of Ambrosius Pareus, and done into English for the behoofe of Young Practitioners in Chirurgery*, by H. C., London, 1634, pp. 116.)

Some of you are no doubt aware that this great improvement in surgery was promulgated in this country by the Founder of our Glasgow Faculty. In his “Discourse of the Whole Art of Chyrurgerie,” second edition, London, 1612 (Lib. iv, cap. 7, p. 93), Peter Lowe says:—

“But where there is putrification, we stay the fluxe of blood by cauters actuals, and when there is no putrification, malignity nor humor venomous, we use the ligatour. . . . In amputation without putrification, I find the ligatour reasonable sure, providing it be quickly done. To doe it, first thou shalt cause the assister, as I have said, to holde his fingers on the vaines, letting one loose, on the which thou shalt take hold with the backe Decurbin, taking a little of the flesh or muscles with it: then put through a needle with a strong thread, knit with a double knot, tying a little of the flesh with the vaine, which will make it hold the better,” &c.

The ligature was thus strongly advocated in the first British treatise on surgery, written by Peter Lowe, who had evidently learned it from Paré while resident for many years in France; but the ligature does not seem to have been very widely adopted in this country, for we find a subsequent writer of authority, the so-called “Father of English Surgery,” speaking slightly of it.—(Wiseman, “*Severall Chirurgicall Treatises*,” London, 1676, p. 453.)

All this may give you more interest in hearing the words of Celsus:—

“But if even these do not prevail against the hæmorrhage, the vessels, which discharge the blood, are to be taken hold of and tied in two places about the wounded part, and cut through, that they may both unite together and nevertheless have their orifices closed.”—(Lib. v, cap. 26, *As to Cure of Hæmorrhage from a Wound*, p. 223.)

In another passage as to operations on the testicles he says:—

“And as several veins are dispersed upon it the small ones may be cut at once, but the larger should be first tied with a pretty long thread, to prevent a dangerous hæmorrhage from them. . . .

“But before they are cut off the vessels ought to be tied very carefully by a thread: and the ends of this thread must be left without the wound, which must be done also in other veins where the ligature is requisite.”—(Lib. vii, cap. 19, pp. 351, 353.)

OPENING INTERNAL ABSCESSSES.

The opening of abscesses in the pectoral and abdominal cavities—to which collections the general name of “empyema” was applied—seems to have been practised by Celsus. The following refers to opening and cauterising a vomica in the liver. It is safer here to quote the Latin of Daremberg’s text:—

“Si vero jecur vomica laborat, eadem facienda sunt, quæ in ceteris interioribus suppurationibus. Quidam etiam contra id scapello aperiunt, et ipsam vomicam adurunt.”—(Lib. iv, cap. 15 [viii].)

M. Védrenes thinks this implies an operation “*en deux temps*.”

The following from the section on the ribs and spine, seems to refer to suppuration within the chest. Dr. Warburton Begbie* refers to this as one of the few allusions made by Celsus to Thoracentesis, although this seemed a common operation with Hippocrates:—

“If notwithstanding, the suppuration take place and cannot be discussed by the medicines prescribed before, no time must be lost, lest the bone below be affected: but in the part where it shall swell most, a hot iron must be introduced till it reach the pus, which must be evacuated.”—(Lib. viii, cap. 9, p. 405.)

OPERATION FOR CATARACT.

I come now to the celebrated description by Celsus of the operation for cataract:—

“Now a humour concretes under the two coats, where I mention the void space to be, either from a disease or a blow; and being gradually indurated, it obstructs the interior faculty of vision. There are several species of this malady, some of which are curable, and others not. For if the cataract be small, immoveable, of the colour of sea-water, or burnished iron, and leaves some sense of light on its sides, there remains hope. If it is large, if the black part of the eye, losing its natural appearance, is changed into some other, if the cataract be of the colour of wax or gold; if it slides and moves to and fro, it is scarcely ever cured. And for the most part, the more severe the disease, or the greater the pains of the head, or the more violent the blow has been, which gave rise to it, so much the worse it is. Neither is old age a proper time of life for a cure;

* *Selections from the Works of the late J. Warburton Begbie* (London, 1882), p. 208.

which without an additional disease causes a dimness of sight; nor even childhood; but the middle age betwixt these. Neither is a very small eye, nor one that is hollow, fit for this operation, and there is also a certain maturity of the cataract itself; wherefore, we must wait till it seems to be no longer fluid, but to have concreted with a certain degree of hardness.

"Before the operation, the patient must use a spare diet, drink water for three days, the day immediately preceding take nothing at all. After this preparation he must be set in a light place, in a seat facing the light, and the physician must sit opposite to the patient on a seat a little higher; an assistant behind taking hold of the patient's head, and keeping it immoveable, for the sight may be lost for ever by a slight motion. Moreover, the eye itself, that is to be cured, must be rendered more fixed by laying wool upon the other, and tying it on. The operation must be performed on the left eye by the right hand, and on the right by the left hand, then the needle sharp pointed, but by no means too slender, is to be applied, and must be thrust in, but in a straight direction through the two coats, in the middle part betwixt the black of the eye, and the external angle opposite to the middle of the cataract, care being taken to wound no vein. And it must not be introduced with timidity neither, because it comes into a void space. A person of very moderate skill cannot but know when it arrives there; for there is no resistance to the needle; when we reach it, the needle must be turned upon the cataract, and gently moved up and down there, and by degrees work the cataract downward below the pupil; when it has past the pupil, it must be prest down with a considerable force, that it may settle in the inferior part. If it remain there, the operation is compleated. If it rises again, it must be more cut with the same needle, and divided into several pieces; which when separate, are both more easily lodged, and give less obstruction. After this the needle must be brought out in a straight direction, and the white of an egg spread upon wool must be applied, and over that something to prevent an inflammation, and then the eye be bound up.

"Afterwards there is a necessity for rest, abstinence, mild unctuous medicines, and food (which it is soon enough to give on the day following) at first liquid, that the jaws may not be too much employed, then when the inflammation is gone, such as was directed in wounds. To which we must add this rule, that the patient's drink be water for a pretty long time."—(Lib. vii, cap. 7, pp. 330, 331.)

ANATOMY OF CELSUS.

The anatomy of Celsus, like his surgery, has been specially commended. I show you an old treatise published in Leyden in 1616: "A. Cornelii Celsi de Re Medica liber octavus. Ejus

priora quatuor capita Commentariis illustrata à Petro Paaw." This deals chiefly with anatomy, but refers also to the use of trephines and to other surgical matters. As you see, it has numerous illustrations of skulls, bones, &c.

In Dr. John Brisbane's *Anatomy of Painting* (folio, London, 1769), there is an addendum on "The Anatomy of Celsus and Physiology of Cicero." Dr. Brisbane gives there a translation of various extracts from Celsus, and appends certain notes. It may interest some of you to learn that the author of this work was the son of Dr. Brisbane who was Professor of Anatomy in Glasgow University from 1720 till 1742.

BIBLIOGRAPHY.

Several ENGLISH TRANSLATIONS of Celsus exist, some of them with Latin texts and aids for translation. The explanation of such "aids" is that, for many years, certain books of Celsus were often prescribed for the examination of medical students in Latin for their degrees or diplomas. The translation from which I have quoted various extracts is that of Dr. James Greive, published in Edinburgh in 1814; but the first edition of this translation appeared in London in 1756. It is rendered from van der Linden's text, and has some useful notes, and tables also of weights and measures. Another translation which I show you is by Alex. Lee, A.M., Surg.: "Translated from L. Targa's edition, the words of the text being arranged in the order of construction." This translation appeared in 2 vols., London, 1821. There is prefixed the Life of Celsus by J. Rhodius, in Latin, with an English translation also.

Another translation, obviously for students preparing for examination, is by Steggall (John): "The First Four Books of Aur. Corn. Celsus De Re Medica, with an Ordo Verborum and literal Translation" (London, 1837).

Of LATIN TEXTS PUBLISHED IN SCOTLAND, there is the admirable edition by Milligan (E.): "A. Corn. Celsi Medicinæ Libri Octo" (Edinb., 1826). A second edition of this, published in 1831, has special value as containing a complete concordance, with every word of Celsus indexed.

Another Scottish edition has special interest for us here, being published in Glasgow, and it is announced as intended both for medical and humanity (Latin) students—Morris (And.): "A. Corn. Celsus De Re Medica" (2 vols., Glasgow, 1766). The title-page of the first volume bears, "In usum Humanitatis et Medicinæ Studiosorum."

OLD EDITIONS.—The oldest edition I can show you is one published in Paris in 1529, along with the works of Scribonius Largus, edited by Ruellius.

The *editio princeps* of Celsus is dated 1478; it was published in Florence.

The "Aldine" editions appeared in Venice in 1528 and 1547.

Krause (Lipsiæ, 1766) and Almeloveen (1687-1766) brought out important editions; there are several different issues of the latter.

Targa (Leonardi) gave a new and revised text (Patavii, 1769), and this may be said to have formed the basis of the subsequent editions till Daremberg's appeared in 1859.

The best MODERN EDITIONS are—

Daremberg (C.): "A. Cornelii Celsi de Medicina Libri Octo" (Lipsiæ, 1859).

Védrenes (A.): "Traité de Médecine de A. C. Celse. Traduction nouvelle, avec texte Latin, notes, commentaires, tables explicatives, figures dans le texte," &c. (Paris, 1876.)

BIBLIOGRAPHICAL AND HISTORICAL WORKS.—For lists of the various editions, with bibliographical notes, I have placed on the table before you the following:—

Choulant (L.): "Prodromus novæ editionis Auli Cornelii Celsi Librorum Octo de Medicina. Inest apparatus critici Celsiani" (Lipsiæ, 1824); also, by the same author, "Handbuch der Bücherkunde für die Ältere Medicin" (2^e Aufl., Leipzig, 1841).

Kühn: "Panegyr. Medic." (Lipsiæ, 1821): "A. Cornelii Celsi editio nova exoptatur."

The French dictionaries of biography likewise contain valuable lists under "Celse." "Encycl. des Sciences Médicales—Biographie Médicale" (Paris, 1840); "Dictionnaire des Sciences Médicales—Biographie Médicale" (Paris, 1821).

In the study of Celsus, historical works, such as those of Sprengel, Portal, Le Clerc, and Daremberg, are important. See also "Conférences Historiques faites pendant l'année 1865" (Paris, 1866); Littré, "Médecine et Médecins" (Paris, 1872). Most of the special works and articles on Celsus have been already quoted in this lecture, and need not be referred to again.

ON A CASE OF LEUKÆMIA, WHICH OCCURRED IN THE GLASGOW ROYAL INFIRMARY, IN 1890; WITH AN ACCOUNT OF CERTAIN PECULIAR BODIES WHICH WERE PRESENT IN THE INTERSTITIAL SUBSTANCE OF THE HEART-WALL.*

By THOMAS KIRKPATRICK MONRO, M.A., M.B., F.F.P.S.G.,
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J. D., a coal-trimmer, æt. 26, was admitted to Ward V (under Dr. Alex. Robertson), on 22nd May, 1890. He complained of swelling of the abdomen, thirst, loss of appetite, and inability to sleep. His illness, which extended over two years, began with swelling of the feet in the evenings. Then he suffered from shortness of breath, especially on exertion. He had also several attacks of bronchitis, on occasion of which he had pretty severe pain in the left side of the abdomen. The abdominal enlargement had been steadily increasing since it first began, 18 months before. The urine was high-coloured and scanty. The bowels were regular. Patient had been in India some years previously, and had suffered from mild attacks of ague on several occasions.† He further admitted that he was addicted to alcoholic excess.

It was found, on admission, that the whole abdomen was enlarged, with dilatation of the superficial veins. Over most of the left side, as far down, almost, as the symphysis pubis, and for about two inches to the right of the middle line, there was dull percussion, with great increase of resistance on palpation. Change of posture did not alter this condition. The right side and part of the left flank gave tympanitic percussion. The liver appeared to be of normal size. There was a faint trace of albumen in the urine, and the course of

* An histological research conducted in the Pathological Laboratory of the Glasgow Royal Infirmary on the invitation of the Pathologist, Dr. John Lindsay Steven, who made, and recorded the results of, the *post-mortem* examination.

† A study, even of the earliest recorded cases of leukæmia—as, for instance, those collected in Bennett's work on the subject—suggests a connection between this disease and intermittent fever. Virchow remarked on this as early as 1852 (*Archiv* for 1853, vol. v, p. 95). In a discussion at the Pathological Society of London, in the year 1878, Gull, Gowers, and Goodhart all expressed their belief in such a relationship. Gowers stated that there was a history of ague, or of residence in an ague district, in 25 per cent of the cases of splenic leukæmia which he had collected (*Lancet*, 1878, vol. i, pp. 460 and 495).

the temperature, which reached as high as 105°, was strikingly irregular. Nothing noteworthy was detected on examination of the chest.

A microscopic investigation of the blood showed a reduction in the number of red corpuscles to the extent of about a third, while the white corpuscles were greatly increased, and microcytes were also observed.

Latterly, mental derangement and œdema of the face supervened. Death took place on the 28th June, 1890.

Patient had been treated by arsenic, quinine, and other remedies.

The *post-mortem* examination showed that the enlargement of the abdomen was due to great distension of the stomach, fluid effusion in the peritoneum, and excessive hypertrophy of the spleen. The last-mentioned organ, which was adherent to the diaphragm and to the great omentum, weighed 8 lb. 2½ oz.; while its dimensions were:—length, 13½ inches; breadth, 8 inches; antero-posterior diameter, 5 inches. Several irregular white nodules were seen on the surface, these being due to localised thickenings of the capsule. It was further found, on cutting into the organ, that the capsule was thickened at other parts, where this would not have been suspected from a surface view. As the organ underwent hardening in alcohol, numerous irregularly shaped areas, which were deeply stained of a reddish-black colour, became very apparent on the surface. The general appearance of the tissue on section was somewhat like that of red marble—a mixture of red and white areas of various shapes and sizes. Some of the white pieces were very large, and even after preservation in alcohol, remained soft and caseous-looking, while their shape and general appearance suggested their origin as infarctions. Throughout much the larger portion of the organ, no trace of a malpighian body could be detected by the unaided eye; but, after much search, a little piece was found which contained several distinctly hypertrophied bodies.

Several enlarged lymphatic glands were situated at the hilus of the spleen. One of them (after hardening) measured 2 inches in length.

Microscopic Characters.—The morbid changes in the tissue of the spleen are very complicated, the chief of them being lymphatic tissue development, necrosis, and pigmentation; and these different processes are mixed up with one another in a very irregular manner throughout the whole organ. Though there are not many distinctly defined malpighian bodies to be seen, there is an abundance of that form of tissue

of which these are normally composed. Very little, indeed, of the healthy splenic pulp is left, but still a trace of it can be observed here and there, and it can be seen that the sinuses which contain red corpuscles are becoming filled up by leucocytes. A considerable proportion of the tissue seems to consist of pulp whose sinuses are already occupied by cells, which are either exactly like leucocytes, or are much larger, and contain one or more nuclei, and sometimes pigment. The walls of the sinuses are thickened, and the trabeculæ have undergone hypertrophy, the increase of their unstriated muscular fibres being shown by the number of the rod-shaped nuclei.

Necrosis is also largely exemplified, and it is remarkable how freely the tracts of living and of dead tissue intersect one another. The necrotic portions do not take on the nuclear stains; but, in some parts, the cells stain very slightly, as if they were now undergoing necrosis. The presence of fibrin can be demonstrated by means of Weigert's special stain. There is no evidence of amyloid degeneration.

The pigment is, for the most part, brownish-red in colour. It is present, to some extent, in the cells, but much more in the fibrous trabeculæ, and in the midst of the necrosed tissue. It consists of granules which are quite irregular in shape and size, and are sometimes aggregated in large quantity. The tendency to the deposition of pigment seems, in the case of this spleen, to exist wherever fibrous tissue is present. Thus, for example, it is observable among the fibres of the pulp.

The thickening of the capsule is due simply to excessive growth of dense fibrous tissue. Underneath this, there is a large amount of golden-brown pigment, which extends along the trabeculæ into the substance of the organ.

The redness of the marbled cut surface seems to be due, in part at least, to the presence of blood. It is here, too, that the cellular elements still exist; in the paler portions, the cells are dead or dying.

When one of the deeply stained areas seen on the surface is examined microscopically by means of a vertical section, it is seen that large quantities of pigment, in the form of coarse granules, are present under the capsule.

The caseous-looking material consists of amorphous necrosed tissue, with a few cells which have not yet disappeared, and some pigment. At its marginal portion, where it is adjacent to lymphatic tissue, the pigment is specially abundant.

The necrotic process comes on quite irregularly. In many places, there is a very definite line of demarcation between

the lymphatic tissue and the necrosed tissue. When the spleen pulp becomes necrosed, the cells seem to die before the fibrous elements, so that the amount of fibrous tissue is apparently much increased, although probably an actual hypertrophy of the fibres does take place. The lymphatic tissue, on the other hand, is so cellular, and its fibres are so delicate, that the actual process of necrosis is not easily seen in its case; yet, it can hardly be doubted that this tissue, as well as the pulp, succumbs to the defect of nutrition.

In the blood-vessels of the spleen, as of all the other organs, there is a great increase in the proportion of white corpuscles.

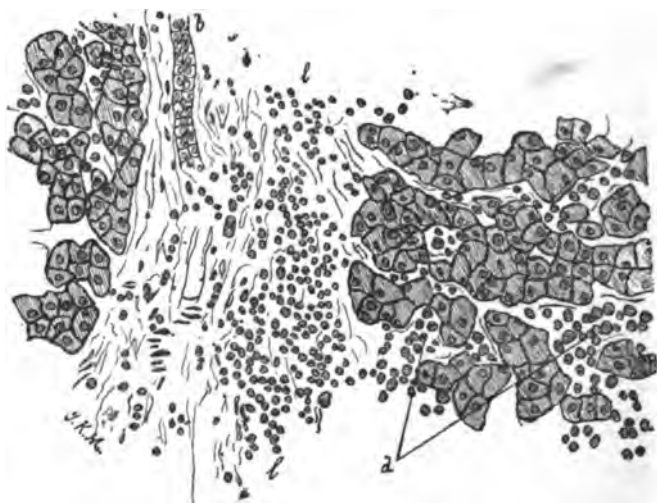


FIG. 1.—LIVER IN LEUKÆMIA: PORTIONS OF TWO LOBULES.
× 370.

- d. Dilated capillaries, containing excess of white corpuscles.
- b. A small bile-duct.
- l. Lymphatic new-formation in the interlobular connective-tissue.

Examination of a large lymphatic gland taken from the hilus of the spleen shows the usual structure of this variety of gland; but, in addition, there is an abundance of yellow pigment, chiefly in irregularly rounded granules, which, as elsewhere, are frequently in clusters.

The *liver* was enlarged, weighing 90 lbs., and was very soft and pale, but not otherwise abnormal to the naked eye. Under the microscope, it is seen that at some places the capillaries are much dilated, so as to cause atrophy of the hepatic cells. Here and there, especially round the central

vein of a lobule, the atrophy is accompanied by brown pigmentation. The excess of white blood corpuscles is well seen in the vessels of this organ. These leucocytes vary much in size, and have nuclei, which also vary much in size as well as number. In the liver, too, white cells are present in large quantity outside the vessels, being scattered about irregularly in the interlobular areas. In addition to this, a few microscopic growths of lymphatic tissue can be observed.

Both *kidneys* were large, with pale, thickened cortex, and occasional small, pearly-white nodules. There was no evidence of amyloid change. Even with the microscope, little that is morbid can be detected. Such as there is consists merely in extravasations of a few leucocytes, with now and then a little lymph-adenoid growth.

The *mesenteric glands* are much enlarged, one of them being 2 inches in length. The microscopic appearances resemble those of the gland already mentioned as having been taken from the hilus of the spleen, except that, in addition to the coarse granules of golden-brown pigment, there is a large number of much smaller particles of black, or at least, very dark colouring-matter in one portion of the cortex.

The *marrow* of the shaft of the femur is replaced by lymphatic tissue, which, however, has not in any way destroyed the bone.

A microscopic section of the *heart-wall* gives an excellent idea of the leucocytosis in this case. No extravasations of leucocytes, however, and no lymphatic new-formations are observable. The most interesting feature in this organ is a remarkable condition which, so far as I am aware, has not yet been described, either in connection with the normal heart, or in connection with leukæmia. This consists in the presence of numerous bodies of extremely minute size in the interstitial substance of the muscle of the heart. These little particles stain with logwood, exactly as nuclei do. They are seen to best advantage, perhaps, in intermuscular septa, which are large enough to accommodate arteries of the smallest size, for there they may be compared with the nuclei of the arterial walls. In such a situation, the bodies in question are seen to be thickly dotted throughout the interstitial substance, and they extend from this into the spaces between the individual muscular fibres. They are so small that they can be just seen and no more with a magnifying power of several hundred; but they can be studied more accurately with an oil-immersion lens ($\frac{1}{2}$ or $\frac{1}{8}$). They are thus seen to be rounded or oval in form. If a

transverse section of the nucleus of a fibre-cell in the wall of a fine arteriole should happen to be present in the field under observation at the time, it will be seen that the diameter of one of the little bodies under consideration is decidedly less than that of such a cross-section.

As to the origin and nature of these bodies, I cannot at present put forward any definite view. Their reaction to staining agents suggests that they are nuclei of some kind;



FIG. 2.—HEART-WALL IN LEUKÆMIA.

× 765.

m. Muscular fibres cut transversely, obliquely, or longitudinally, with their nuclei.

v. A small blood-vessel, showing excess of white corpuscles.

n. Nucleus of an endothelial cell in the vessel-wall.

c. Capillary, empty, but showing the nuclei of its walls.

p. Peculiar, very minute bodies described in the text; present in large numbers in the interstitial substance (only) of the heart-wall.

while this, together with the variety they present in their form and size, would appear to exclude the idea of micro-organisms. It is natural to ask whether they might not be nuclei which have escaped from leucocytes, but this is not at all likely. For leucocytes differ greatly in the number and size of the nuclei they possess. Some have only one, others have four or five; and, speaking very broadly, the size of the nuclei in individual leucocytes varies inversely as their number—*i. e.*, the nucleus, if it be single, is usually large, and

not much less in size than the cell itself; whereas, if it be multiple, its constituent parts are of much smaller size. Now, among the curious bodies I have described, we do not find nearly so much variety in size as we find among the nuclei of different leucocytes. It could only be to the nuclei of the very smallest size that these little structures could possibly correspond; and such, of course, constitute but a trifling proportion of the total number of nuclei. Moreover, as has been already remarked, the nuclei, where small, are usually multiple, so that, if the minute bodies had been liberated from disintegrated leucocytes, we should expect to find them in clusters of three or four or more; this appearance, however, we do not meet with. Besides, the leucocytes are (in the heart) confined to the interior of the blood-vessels; while the little bodies are present only in the interstitial substance.

It only remains to be said that these little particles, though found in all the suitably stained sections of the heart-wall, which were examined, could not be detected in the other organs of the body.

THE RELATIONS OF OPHTHALMOLOGY TO MEDICINE AND SURGERY.

By FREELAND FERGUS, M.D.,

Surgeon to the Glasgow Eye Infirmary; Lecturer on Ophthalmology.

(Continued from p. 205.)

ATROPHY OF THE OPTIC NERVES.

WE have already seen that atrophy of the optic nerves may be secondary to some form of neuritis, which is accompanied by an inflammatory state, more or less acute, of the papilla. In other cases it occurs without any apparent previous inflammation. Probably the best example of this is the atrophy of the nerve which accompanies locomotor ataxy, although at times there is, in this disease, a previous subacute neuritis. Such cases are called simple primary atrophies, and are admitted to be by Gowers²¹ an affection of the parenchyma of the nerve tissue. Charcot²² believes that almost all such cases occur where there is either actual or incipient spinal disease—an opinion with which Gowers does not coincide, although he acknowledges that a very large proportion of them are. Not infrequently do we find that the condition of the nerve

precedes the manifestation of any distinctly ataxic symptoms. The visual acuteness may remain good till the nerve is nearly completely involved, but almost from the very first the light and colour senses are found to be disturbed. This is specially true of the peripheral colour sense. On the other hand, if the nerve be atrophying from any retro-bulbar neuritis, as in tobacco amblyopia, the colour sense is affected, chiefly at the centre, and for certain colours there may be complete scotoma.

Stress has sometimes been laid on the different tints of the atrophic nerve, as being of diagnostic importance, according as the colour is grey or white. Judging from our own experience we would lay little stress on such appearances, and are inclined to believe that this matter more depends upon the length of time during which the atrophy has lasted than on any specific difference in the pathological processes.

Atrophy of the optic nerve is often due to toxic causes. Thus, we have already seen that it may accompany severe cases of lead poisoning. Here it may be preceded by an inflammatory condition, but in certain cases occurs as primary atrophy—*i. e.*, without any preceding inflammatory affection. It is also said to occur in carbon bisulphide poisoning; of that we never have had any occasion to see examples. We have frequently seen it following tobacco poisoning, and it is said to occur as the result of prolonged abuse of alcoholic stimulants. Of that we think we have seen several examples, but they were by no means unequivocal. Professor Snellen of Utrecht used to teach that tobacco amblyopia only occurred when the indulgence in tobacco was accompanied by alcoholic excess. We do not know the Professor's present opinion on the matter, but we are quite certain that we have seen tolerably advanced atrophy from tobacco where there was no just ground to suspect the patient's habits as regards stimulants.

There is one class of cases to which we would direct special attention; of this class we have had opportunities of seeing two patients—one in hospital practice, the other in private. As the latter is the case to which we directed most attention, we shall describe it somewhat at length. Be it said, however, that the cases seemed identical, both in their clinical features and in the circumstances of their origin. Mrs. W., a woman in middle life, became pregnant. At that time she was not under our care, but only became so on account of her eyesight, months after her illness. When well advanced in her pregnancy, she became the subject of albuminuria, and suffered severely from convulsions. She had also anasarca of the feet, of the eyelids, and generally speaking,

of the body. Ultimately she developed symptoms of uræmia, and we believe that premature labour was induced. During her illness her sight began to give way, and gradually decreased till after her delivery, when she was nearly blind. On examining her eyes, we found that there was very far advanced atrophy of both optic nerves. The discs were intensely pale, although both arteries and veins were of nearly normal size. We believe such cases to be exceedingly rare, as amongst the many patients we have seen we have only come across these two examples. Both our patients recovered vision to such an extent as to be able to distinguish large objects, such as the very largest types of Jæger's hand series of types. After the lapse of several months, we found that the sight had not improved in the very least. We think these cases essentially differ from the blindness which is sometimes the result of uræmia, of which the patient generally gets rid, if he recover from the malady. It is right to observe, however, that albuminuria sometimes produces neuritis, which may be so acute as to be a papillitis, and which may ultimately end in complete optic nerve atrophy, with more or less destruction of vision.

Another class of cases of atrophy also seems to require special mention. We refer to atrophy occurring in young infants, apparently brought on by severe illness. We have seen four or five such cases, one of which occurred in the practice of our late father, Dr. Andrew Fergus, which case we had under observation for a period of at least three years. All these cases have had the same mental and physical peculiarities, and all have been accompanied with intense whiteness of the optic nerves. The difficulties of thoroughly examining the eyes of such a patient are almost insurmountable, but we are perfectly sure of the fact of the atrophy. A young infant was seized with a violent illness, characterised by high temperature, vomiting, drowsiness, &c., which was diagnosed by our father as most probably tubercular meningitis. At the time of the illness we did not see the patient, but we ascertained that sometimes there were violent convulsions; we are unable, however, to state what parts of the body were convulsed. From that illness the child gradually recovered, but at intervals of several months had slight relapses. After a time it was noticed that there was apparent blindness, the infant making no effort to grasp any object held out to it, although it was certain, from the movements of the eyes, that it was conscious of bright lights. As time went on other symptoms became manifest. Thus, the child made no attempt to speak, but

could only give utterance to inarticulate cries. It also did not attempt to walk, and scarcely ever crawled; the most it could do was to raise itself into a sitting posture when in bed. The last occasion on which we saw the patient was when it was 5 years old, and these peculiarities were as marked as ever. The child is now some 9 years of age, and is most unquestionably an idiot. Once during its illness, when it was about 3 years of age, we had an opportunity of observing it during one of the relapses. The facial muscles were at times much convulsed, as were also the whole of the four limbs. The seizures followed each other in rapid succession, and, during the half hour or so that we were at the patient's bedside, he may have had as many as ten of them. The patient at all times passed both urine and fæces without giving any warning, which we believe was due to the want of consciousness rather than any paralysis. We cannot give any idea as to the cerebral condition; whatever may have been the cause of the mischief, it seemed liable to intermissions and exacerbations. The family history was not free from a tubercular taint, but the clinical history was not such as we would have expected in tuberculosis. The head was considerably below the average in size, and no other manifestation of tuberculosis was ever manifest either in the lungs or other organs. This was the most marked case of the kind which we have observed, but in the others there were, more or less, the same mental and physical features. In one of them, it should be remarked, the bodily condition was much better, in so far as the child became able to walk; the mental state, however, was only very imperfectly developed, and the sight was almost *nil*, even after the lapse of years.

It is well to remember that atrophy may be due to secondary causes. Thus, any pressure on the nerve in its course, such as by tumours, exostosis, pressure in the third ventricle, aneurysms, may cause this affection. Some of these may be preceded by optic neuritis. Again, any lesion in the centres of vision may produce a descending destruction of the nerve tissue. Syphilis, and it is said sexual excesses, may also produce it. We have seen many cases of syphilitic atrophy, some of which have probably been preceded by neuritis, but we are not sure that we have ever seen a case due to sexual causes, unless the following may be taken as such:—A young man, aged about 30, who had been married for about three years, consulted us for great dimness of sight. On examination we found both nerves in a far advanced state of atrophy. He neither smoked nor drank, and had never done so. Other-

wise, he was a perfectly healthy man, following an occupation, that of a farmer, which seemed to us to put out of all question toxic influence. He absolutely denied any syphilitic taint, and certainly he had no other signs of being the subject of syphilis. He told us that his sight had only failed since he was married.

Some forms of atrophy are of more especial interest to the ophthalmic surgeon; we refer more particularly to atrophy due to choroidal and retinal disease.

Sometimes injuries to the head may cause trouble either in the optic nerve or in the retina. In certain forms of injury, especially those accompanied with wounds, we often find optic neuritis. This is doubtlessly to be attributed to an accompanying meningitis. In all such cases the local condition is of much more importance than the ocular. In another group of cases we may have effusion into the optic nerve or retina; in the former case the condition not infrequently produces secondary atrophy of the nerve, and hence necessitates a very guarded prognosis. There are certain phenomena (micropsia) which are exceedingly characteristic of disturbance of the retina. If there is effusion into the retina, the rods and cones may become more or less separated. If this take place, then there are fewer elements to a given size of image, and hence the object appears much smaller. Not infrequently do we find such a condition producing distortion, and hence finely ruled lines appear broken and, if in reality parallel, sometimes converging. On the other hand, if the retinal tissue undergoes cicatrisation, a larger number of elements correspond with the same size of image, and therefore the size of the object appears greater. Very often no visible change can be seen in the fundus, but ultimately it is not uncommon to find atrophy of the disc. We may give the following case as illustrative of these phenomena:—D. P., a labourer, received a blow on his head while working near a horse. He came to the Eye Infirmary complaining that he had lost the sight of the right eye. We observed that there was slight discolouration of the skin on the right temple, but externally the eye looked normal. On examining the fundus the eye looked perfectly healthy; there was no separation of the retina, dislocation of the lens, hæmorrhage, or other condition to account for such a great loss of vision. We rather suspected simulated blindness, but, on carefully using the tests adapted for its detection, we had no reasonable doubt that the patient's complaint was well founded. We put him to bed and gave him 10 grain doses of iodide of potassium; gradually the sight returned, until he was able to see letters of $\frac{20}{70}$. After a time

he complained that objects appeared rather greater in size than formerly, but after a year's observation we were satisfied that there was no atrophy of the nerve. We think this case most easily explained as follows:—In our opinion there had been considerable effusion both into the optic nerve and into the retina. To the former we attribute the almost complete loss of sight, for we cannot conceive it possible that there could be such great effusion into the retina without some obvious sign of it to ophthalmoscopic observation. We attribute recovery to the fact that the effusion of the nerve was absorbed without causing such changes as would necessarily lead to atrophy of the nerve tissue. The fact that objects appeared greater in size (micropsia) was probably due to a cicatricial process drawing a number of rods and cones together, so that a greater number corresponded with a given size of image. This is the explanation usually given, and we believe it to be the right one.

There are certain other conditions of the fundus of the eye which are of great importance to the physician. We refer especially to those characteristic of embolism or thrombosis of the central artery, to retinitis albuminurica, to the appearances in diabetes and leucocythæmia, and to such signs as are due to the presence of syphilis, inherited or acquired.

EMBOLISM.

When this occurs so as to involve the entire central artery, there is invariably sudden and almost complete loss of sight, vision at most being a perception of light. The onset of the attack, in its suddenness, is extremely characteristic. Sometimes, but not often, there is considerable pain, which soon passes off. On examination with the ophthalmoscope, the arteries are found to be very much diminished in size and empty of blood. Even in the early stages the retina presents a white opaqueness, probably due at this stage to oedema. At a later period it gives place to a more dense opacity, probably the result of retinal tissue changes. Although the retina thus presents an unnatural whiteness, in the region of the macula there is found to be a bright red spot, which is circular in shape, and so brilliantly red as to resemble a clot of arterial blood. It is caused, however, simply by contrast, that part of the retina preserving its natural transparency, and the red choroid showing through. In this connection it is well to remember that the retina is very much thinner in this situation than at any other part of its surface. Thrombosis of the artery, an exceedingly rare event, presents absolutely

similar appearances, so that the two conditions cannot be ophthalmoscopically differentiated.

The most frequent cause of embolism is, of course, cardiac valvular disease, and it may accompany, precede, or follow embolism in other organs. It may also take place in Bright's disease, in syphilis, and, indeed, in any condition in which we may have the formation of clots, or in which there may be any cause of embolism. Within the last two years we have seen two cases of this affection, which have impressed themselves on our memory. One of these cases was a young woman, aged 20, who came complaining of absolute and sudden blindness, and on examination we found all the signs and symptoms already described. She was examined and re-examined by Dr. Gemmell, who, however, was unable to detect any cardiac lesion or any albumen in the urine. She informed us that at one time she had acute rheumatism. The other case was that of an old man who had the disease in a most characteristic manner. He told us that at one time he had suffered from a slight shock of paralysis, which, from his description, we thought had unquestionably been right hemiplegia. From that he made a good recovery, although the movements of the right limb in walking were not absolutely free. Some considerable time after, he came complaining of sudden blindness in the left eye, which was due to embolism of the central artery of that eye. On further examination we found that he had very marked signs of aortic obstruction and regurgitation.

At times, the sudden onset of blindness, accompanied with the ophthalmoscopic appearances of embolism, is the first indication of cardiac lesion, and serves to call the attention of the physician to the real state of matters. This, however, is somewhat rare, for generally there are other more prominent symptoms long before this occurs.

Occasionally embolism does not involve the entire artery, but only one of its branches. When this occurs the defect of vision is limited to the part of the retina supplied by that branch, although not uncommonly, from secondary changes in the retina, we find that vision is affected to some extent in the other parts. Cases have been recorded in which the circulation seems to have been re-established, with a consequent improvement in vision. We have never seen any such case, and from their very nature they must be so rare that it is beyond the scope of our present inquiry to discuss them. One such case is recorded by Eales in the *Ophthalmic Transactions* for the year 1888.

(To be continued.)

CURRENT TOPICS.

CLINICAL INSTRUCTION IN INFECTIOUS DISEASES.—The following Report for Winter Session 1891-92 has been presented by Dr. J. W. Allan, Physician Superintendent at Belvidere:—

“During the Winter Session 1891-92 two courses were conducted—one from 24th October till the Christmas holidays, the other from 16th January till 12th March. In each of these courses an attempt was made to keep the classes strictly to the regulation number—viz., twenty-five each—but, as will be seen from the accompanying figures, that number was rather exceeded. The classes met on Saturday, that being the only day available for students in the Winter Session, by the present arrangement of medical studies. The number of students attending in a Winter Session is thus practically restricted to fifty. A much larger number could be undertaken if the medical curriculum were extended and modified so as to give more time and opportunity for coming to Belvidere. At each meeting it was usual to give two forms of instruction—viz., (1) a short lecture in the class room, and (2) bedside demonstrations in the wards. There was thus an attempt at a combination of systematic and clinical teaching—the former necessarily meagre from the very limited time at our disposal.

NUMBER OF STUDENTS ATTENDING CLINIQUE IN WINTER SESSION 1891-92.

First half (October to Christmas holidays),	27
Second half (January to March),	33
	<hr style="width: 10%; margin: 0 auto;"/> 60

“The students attended regularly. So far as I am aware, not one of them contracted infectious disease from visiting the wards.

“It affords me pleasure to acknowledge the assistance of Dr. Love and the other medical officers.”

PATHOLOGICAL AND CLINICAL SOCIETY.—The eighth and last meeting of the session will be held in the Faculty Hall, 242 St. Vincent Street, on Monday, the 9th inst., at 8 o'clock. The following cases and specimens will be shown:—By Dr.

R. M. Buchanan—specimens of liver and kidneys, with an extraordinary development of gas-producing bacteria as a *post-mortem* change; by Dr. Barr—a case in which a foreign body was removed from the tympanic cavity by dissection of the auricle forward; by Dr. A. G. Auld—(1) specimens of pneumonia, (2) one or two specimens of fibroid pneumonia; by Dr. Meighan—(1) a specimen of melanotic sarcoma of the conjunctiva, (2) a case of orbital tumour (empyema of frontal sinus), &c.

UNIVERSITY OF GLASGOW.—The following gentlemen have passed the *first* professional examination for the degrees of Bachelor of Medicine (M.B.) and Master in Surgery (C.M.) :—

John Anderson (Glasgow), John James Anderson, Alex. Blair, Henry Albert Bödeker, James Boyd, John Brownlee, M.A., William Burns, Henry Carmichael, James Souter Christie, William Clow, John Divine, John Sharp Douglas, John Dunlop, Robert Dunsmuir, Richard John Edwards, Samuel English, Albert Alfred Finkelstein, James Henry, John Affleck Hope, Albert Barnes Hughes, David Kerr, John Kerr, John Kirkwood, James Duncan Love, Archibald Mason, Norman Fitz Allan Matheson, George Wardlaw Milne, John Morton, George Bain Murdoch, Daniel M'Coll, Donald MacDonald, John M'Laws, Moses Neil M'Lay, Samuel M'Lean, Alexander Anderson M'Nab, Farquhar Macrae, Daniel Evans Powell, Daniel Richmond, Alexander Robertson, Duncan Stewart Rodger, James Sandilands, David Shedden Service, Alexander Shearer, William Shedden, Archibald Stevenson, James Craik Taylor, James Vair.

The following gentlemen have passed the *second* professional examination :—

John Gibson Anderson, John Bain, David Beatson, Evan Bidie, David Blair, M.A., James Boyle, Thomas Scott Brodie, Johnstone Brown, Thomas Douglas Brown, Peter Stedman Buchanan, Edward Napier Burnett, Archibald Campbell, Joseph M'Naughtan Christie, William Stewart Cook, Alexander Crawford, John Cumming, Henry Davies, Alexander Dingwall, M.A., Alexander Dodds, William Donaldson, Duncan Drummond, William Faulda, George Willmore Francis, James Fullarton, Ernest William Graham, Henry Benjamin Grant, James Hogg, Adam Kay, John Herbert Lawson, John Masterton, John Colin Matheson, Duncan M'Fadyen Millar, Bruce Buchanan Morton, Thomas Rennie Muir, Alexander MacGregor, William Edgar Macharg, Charles M'Kay, James Campbell M'Neillie, Alfred George Newell, James Hamilton Ormond, John Cormack Paterson, James Robertson, Geddes Graham Russell, William Salmond, Joseph Scott, John Shaw, William Smith Sinclair, Thomas David Smith, James Thomson, John Ritchie Turner, Robert Nicol White, Robert Wilson, Robert Tait Wood.

The following gentlemen have passed the *third* professional examination:—

A, including Pathology.—William Cassels, James Cochrane, Peter Forrest Dewar, George Edgar, Alfred Forrest, M.A.; Andrew Graham, Ernest Denny Scott Heyliger, William Munn Hunter, Neil Keith, Robert M'Farlane Marshall, James Robert M'Cheyne Miller, M.A.; William M'Call, George Nicoll, Peter Rankin, James Bryce Robertson, John Davidson Smith, John Barr Stevens, James Thomson, Peter Thomson, Henry William Williams, James Murray Young.

B, not including Pathology.—Thomas Barrowman, Duncan Francis Brown, Allan Cameron, Vivian Ernest Chang, Thomas Colvin, William Copland, George Alexander Eadie, Edward Arthur Eckersley, John James Fraser, Thomas Adams Stewart Gibb, Alfred Alex. Cumming Grant, David Fraser Harris, B.Sc.; William Irwin, James Ritchie Jeffrey, Alexander Kelso, David Millar King, Robert Langmuir, M.A.; Thomas Burns Marshall, James Binnie Millar, John Munro, Duncan MacDonald, James M'Kee, James Morton MacLauchlan, Balfour Stewart Nicholson, John Paxton, Alfred Fred, Septimus Pearcey, Peter Patton Petrie, M.A.; Allan Ramsay, Hugh Robertson, John Selkirk, M.A.; William Northcote Sime, Johnson Marion Smith, Nathaniel Stevenson, M.A.; John Provand Thomson, David Wallace, Alfred Webster, Alexander Grieve Young.

REVIEWS.

The Practice of Hypnotic Suggestion: being an Elementary Handbook for the use of the Medical Profession. By GEO. C. KINGSBURY, M.A., M.D. Bristol: John Wright & Co. 1891.

SINCE the British Medical Association, at its meeting in Birmingham in 1890, gave its countenance to the investigation of the phenomena of hypnotism, and appointed a committee with that object in view, the subject has been put upon a new platform. Not only is a practitioner no longer looked upon with suspicion if he applies hypnotic suggestion for therapeutic purposes, but he is encouraged to do so, so that by collective investigation a correct estimate may be formed of this method of treatment. What the success of the general committee of the British Medical Association may have been we know not; but in Glasgow we were recently told that the local committee had received absolutely no support whatever from the profession. There has been no enthusiasm shown

to test the almost miraculous healing powers claimed for hypnotism. That there is, however, a certain amount of curiosity, if not of interest, in regard to it in the profession in the West of Scotland, was evidenced by the largeness of the audience which recently met in Glasgow to hear Dr. Kingsbury, and to see him demonstrate his method of procedure. Some of those, no doubt, will be tempted to give this treatment a trial, largely owing to the good impression which Dr. Kingsbury himself made, and to the moderation of his advocacy.

Those who care to follow it out, will find his book a very useful guide to practice. Details are given of the various methods of procedure adopted for inducing hypnosis, and it is satisfactory to note that the author employs the simplest of all—viz., fixation of the eyes, and the monotonous suggestion of drowsiness. It is apparently the method by which Prospero in *The Tempest* sends his daughter Miranda to sleep (Act I, Sc. II):—

“ Here cease more questions :

Thou art inclined to sleep ; 'tis a good dulness,
And give it way : I know thou canst not choose.”

The various phenomena that are present or that can be developed by suggestion are next detailed, as also the method to be followed in rousing the patient. Susceptibility, the influence of age, sex, race, &c., are briefly discussed. A more or less complete enumeration is given of the kind of cases, medical, surgical, gynæcological, and lunatic, in which hypnotism is likely to have a successful application. Post-hypnotism, auto-hypnosis, objections to hypnotism, its dangers and their safe-guards, its medico-legal aspects, and various other subjects receive due consideration. The volume concludes with notes of a series of fifty cases of various kinds, more or less successfully treated by this method.

All that Dr. Kingsbury in his book seeks to advocate, he says, is a fair and impartial trial of hypnotism, and we are quite of opinion that such a trial should be accorded it. There will, however, be difficulties in the way, the prejudice against mesmerism being deeply rooted in the mind of the profession, and, we believe, with due cause. A moderate expression of its claims to recognition as a therapeutic agent will, however, no doubt have the effect of leading some to put it to the proof ; but many others will equally, without doubt, be deterred from the investigation by the miraculous cases that are sometimes recorded. It is, for instance, very difficult to believe the case recorded at page 83, where, we are told,

"Professor Delboeuf, of Liege, produced by means of caustic two burns, one on either arm, in the same patient, and of exactly similar extent and severity; he then hypnotised the patient, and suggested that one burn should run a perfectly normal course, whereas the other should remain painless and heal sooner than its fellow. They were both dressed in precisely the same way, but one continued painful and was slow to recover; the other was never even uncomfortable, and was quite well ten days before the painful one." Dr. Kingsbury accepts this, apparently without hesitation; all we can say is, that even a Professor may be deceived. An equally extraordinary case of a different kind is recorded by Dr. Kingsbury himself at page 190. "S. T., aged 8, had for a couple of years given her parents the greatest anxiety, owing to the most unaccountable paroxysms of malicious conduct, during which she was more like a youthful maniac than a naughty girl. . . . At other times she would lie awake for hours, all the while feigning sleep, and when her mother was asleep, she would leave her own bed and climb on to that of her mother, and kick her on the breast as hard as she could. As a result of one of these midnight attacks, the mother had a swelling in one breast, which she feared would develop into cancer. . . . Her parents thought her 'possessed of a devil,' and dreaded her growing up, fearing that she would end in an asylum or on the gallows. After one hypnotic sitting, the child's character was completely revolutionised; she became obedient, gentle, loving, and thoughtful for others."

We cannot help thinking that Dr. Kingsbury would have done well to have left out this case with all its harrowing details and its miraculous transformation of character, as well as some others of an almost equally marvellous nature. He cannot be surprised at many readers suspecting not his, but his patient's veracity, and declining to give an unprejudiced trial to a method of practice which produces, without apparent cause, results so contrary to general experience.

Outlines of Practical Physiological Chemistry. By F. CHARLES LARKIN, F.R.C.S., and RANDLE LEIGH, M.B., B.Sc. Second Edition. Enlarged and revised. London: H. K. Lewis. 1891.

THIS little manual of about 80 pages embodies the course of practical physiology given in University College, Liverpool,

and is the result of many years' experience in teaching the subject to medical students. The authors' aim has been to make the book contain everything required by the students, and more especially to emphasise those portions likely to be of use to medical men in the practice of their profession. Hints have been given as to the examination both of physiological and pathological substances; and a classification of the chief proximate principles in the body and in food, together with a list of the ferments found in the body, precedes a detailed description of these substances. Each one is then taken in turn, briefly described, methods given by which they may be obtained, and the requisite tests are mentioned. Nitrogenous substances are fully dealt with, then the carbohydrates and hydrocarbons. Reference to the emulsifying power of fats and the camphor test for fats should not have been omitted. Some useful notes are given for the examination of milk, bread, flour, and muscle. The actions of saliva, of gastric and pancreatic juices, and of bile are described. A somewhat more detailed account of the stages by which starch is transformed to sugar, and of the composition of the gastric juice, would not have been out of place.

A systematic method of analysing the urine, quantitatively and qualitatively, is given, which, while full on most points, suffers here and there from over-condensation. Thus, the statement that the acidity of urine is due to acid sodium phosphate is only partially true. No means are given of distinguishing between phosphates of the alkalies and alkaline earths, and no hint that the hypobromite test for urea is interfered with by the presence of other nitrogenous substances, such as creatin or creatinin. Again, Liebig's method of estimating the quantity of urea in urine is too inaccurate to deserve detailed notice.

In referring to abnormal constituents of urine, the use of the spectropolarimeter, now so common on the Continent, and so easily carried out in the quantitative estimation of sugar as compared with the ordinary chemical methods, deserved at least a passing notice.

The directions for the examination of calculi, of blood, and of a fluid or solid for the more commonly occurring physiological substances, will be of special use to medical men.

An appendix gives a list of the principal reagents required.

On the whole, the book may be recommended as concise, clear, accurate, and well abreast of the recent developments of physiological chemistry.

The Leeward Islands Medical Journal: being the Proceedings of the Leeward Islands Branch of the British Medical Association, 1891. Edited by H. A. ALFORD NICHOLLS, M.D., F.L.S., M.R.C.S. London: J. & A. Churchill. 1891.

THIS volume, of some 190 pages, we believe to be unique. We know of no other branch of the British Medical Association which has published in volume form its complete proceedings. Considering that the Branch numbers only twenty-eight members, drawn from the various islands of the colony, it looks as if they had burdened themselves with a considerable expense, but reference to the minutes of the first annual meeting relieves us of that fear by unfolding another unwonted fact—viz., that the Governor of the colony had undertaken to have the proceedings published at the expense of the government. Other noteworthy facts are that the first annual meeting extended over five days; that there was a public meeting graced by the presence of the Governor and others; and that the meetings for actual business had an average attendance of only nine members. That these members were willing to work is evident from the papers that the volume contains; and, information not being vouchsafed, we can only hope that they had otherwise a good time in the way of dinners and excursions, as their fellows who attend the annual meetings of the parent association always contrive to have.

The papers read at the meeting were naturally mainly on subjects of great local interest, but which rarely come under the observation of home physicians, *e.g.*, remittent fevers, dysentery, elephantiasis, &c., but some of them were of general interest. There was recorded, for example, a case of strychnine poisoning of a unique kind. The patient, a man suffering from delirium tremens, had, within a few hours, drunk nearly a pound of Fellows' Syrup of the Hypophosphites, and presented all the characteristic symptoms, ultimately recovering under suitable treatment. Another interesting paper is on injury to the kidney from accidental violence, with ultimate recovery.

From the papers read, it is evident that there is considerable diversity of opinion in the islands on the subject of their endemic fevers. Much might, no doubt, be done to elucidate these by careful bacteriological examinations, but, unfortunately, it does not appear that any of the members are experts in this direction. This would seem to militate against the carrying out of a very happy suggestion by the

Governor—viz., that the members should set themselves to the solution of the various problems connected with leprosy and yaws, both of which appear to be common in the Leeward Islands.

The volume reflects great credit on the public spirit of the profession in these islands and on the editor. We cordially wish the Branch every success, and we would look forward to their united endeavours leading to important discoveries, especially in relation to tropical and sub-tropical diseases.

Illustrations of the Inductive Method in Medicine. By WILLIAM MURRAY, M.D., F.R.C.P., Consulting Physician to the Children's Hospital, Newcastle-on-Tyne. London: H. K. Lewis. 1891.

THIS little volume consists of a series of essays, which are evidently the work of a thoughtful physician of large experience. Its aim is a good one—to show that medicine can now lay claim to be enrolled among the inductive sciences. Its keynote is found in an address delivered at the opening of a winter session in the Newcastle College of Medicine (the date of which, as of all the other essays, is somehow omitted), in which Dr. Murray explained to the students the differences between the inductive and the deductive methods, and showed them, by apt illustrations, how it was necessary for any one aspiring to be a doctor to master the inductive method, by the use of which modern medicine has made so much progress.

Other essays are as follows:—"The Physical and Physiological Action of Medicines," "Osmosis in Dyspepsia," and "The Self-Elimination of Poisons," in all of which Dr. Murray insists on the important bearing of well known physical laws on the functions of the body in health and in disease. Two rather striking essays are entitled—"Starving into Health" and "The Dangers of Regular Habits," the titles of which are rather startling, but the matter in them is very good.

There are three essays largely of a practical nature. One on the "Removal of Renal Calculi by Toxic Doses of Belladonna," advocates pushing the drug far beyond the dose which serves to relieve pain and spasm, in the belief that the larger dose somehow tends to the expulsion of the calculi, as in some cases narrated. Another is on "The Treatment of Anæmia and Marasmus by the Combined Use of Pepsin, Pancreatine, and Ox-Gall." The third is on "The Rapid Pressure Treatment of Abdominal Aneurism," with which no

doubt Dr. Murray's name will be associated, he having been the first to prove in an actual case that prolonged pressure (over many hours) could be safely applied to the abdominal aorta so as completely to arrest the flow of blood, and that in this way an aneurism might be consolidated in a few hours (under chloroform).

These essays do not pretend to cover the whole ground of medicine. Subjects which have long occupied the author's attention have been selected as his illustrations, and the reader will find here and there many suggestive thoughts which may serve to throw light on difficult cases, and on the actions of various drugs.

The Pathology and Prevention of Influenza. BY JULIUS ALTHAUS, M.D., M.R.C.P. Lond. London: Longmans & Co.

THIS most interesting and suggestive essay is an amplification of the paper upon the subject read by Dr. Althaus in November last before the Medical Society of London, and since published in the *Lancet*. We welcome it in this more complete form, and find in it a valuable contribution, from a master of neural pathology, to the true understanding of the unity of a disease perplexing from the multitude of its types. The outline of his argument is contained in the opening sentences, and will be best expressed in the author's own words:—

"I purpose to show in this paper that the symptoms of influenza are owing to the action in the system of a special poison secreted by a pathogenous bacillus; that this poison has a special affinity to a definite centre of the nervous system, which is irritated and depressed by it; that an antidote which is able to neutralise the effects of the poison is formed in the blood of the patient, and tends to effect a spontaneous cure of the disease; and that the nearest approach to this antidote which we at present possess appears to be animal vaccine-lymph, which should therefore be used as a preventive of influenza, in case another epidemic of that distemper should break out in the country."

This confidence in the existence of a pathogenous micro-organism has been well assured, if we accept as specific the influenza bacillus described in January by Pfeiffer and Canon; but Dr. Althaus looks also for the discovery of an "anti-toxine" capable of securing immunity against the disease. His advocacy of the use of vaccine-lymph meantime is based upon such facts as the small percentage of

German soldiers and other revaccinated persons attacked by influenza during recent epidemics, and the escape of infants and young children. The various symptoms of influenza in its different forms, as also its sequelæ, are considered in detail, and their origin found in affection of various nerve centres and nerve trunks connected with these. Particular stress is laid upon the statement "that *influenza is always a true nervous fever*, the symptoms of which differ only as far as localisation of the grippo-toxine in different areas of the nervous system is concerned." The occurrence of complications such as pneumonia, where an independent organism is recognised as the exciting agent, is explained on the theory that, through the lowering of the bodily strength, the power of phagocytosis is lost.

These quotations, however, but indicate the headings of this short work; a careful perusal of it in its entirety will show its high merit and well repay the reader.

MEETINGS OF SOCIETIES.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.

SESSION 1891-92.

MEETING IV.—11TH JANUARY, 1892.

DR. ALEX. ROBERTSON *in the Chair*.

I.—CASE OF EXCISION OF THE HEAD OF THE FEMUR BY
THE ANTERIOR INCISION.

BY DR. R. H. PARRY.

Dr. Parry showed a case of excision of the hip-joint by the anterior method. The patient was a little boy, aged 4 years, who was admitted to the Victoria Infirmary in February, 1891, with symptoms of disease in the left hip-joint. The joint was kept at rest for three months, and, as there was some improvement, he was sent home wearing a Thomas's hip-splint.

He was readmitted in August owing to pain in the joint. He was much emaciated, and was suffering from great pain referred to the left knee, the slightest movement of his body

causing him to cry out. The temperature was quite normal, and there was no evidence of tubercular disease in any other part. The fulness in front of the joint, combined with flexion, abduction, and external rotation, suggested that the disease was in front of the joint, the position of the limb relaxing the psoas and iliacus muscles, and relieving pressure of these muscles on the diseased bone. It was decided to perform excision by the anterior incision. The structures were divided until the capsule was reached. No arteries required to be ligatured. The capsule was then picked up and divided, and the edges pulled aside by artery forceps. The joint was seen to be filled with tubercular granulation tissue. A Volkmann's spoon was used to remove the granulation tissue, and a narrow saw introduced to divide the head of the bone.

The whole joint was thoroughly examined and cleaned. The acetabulum showed no marked changes. The neck and a small part of the head showed decided changes. The interior of the neck was removed, as it was soft and friable.

The joint was thoroughly washed with boracic solution, and iodoform and boracic acid rubbed into the bones and ligaments. The capsule was then stitched up; next the muscles; and last of all the skin. No drainage tube was used.

The wound was examined about a fortnight afterwards and found to be quite healed.

In three weeks the splint was removed and he had complete movements of the joint, with no pain, and there was practically no shortening of the limb.

He was dismissed on 26th October quite cured.

The following points were submitted for consideration :—

(1) The advantages of localising the disease to determine the best method of getting at the diseased part.

(2) What term should be applied to the disease in this case? Tubercular osteitis in the neck with subsequent changes in the synovial membrane seemed better than the term hip-joint disease.

(3) The advantages of excision by the anterior method in suitable cases.

(4) The freedom of movements in the new joint without using passive movement.

Dr. Robertson considered the result of the operation in this case very gratifying. He was sorry there were not more surgeons present to discuss the important questions raised by *Dr. Parry* in the course of his remarks.

Dr. T. K. Monro asked as to the difference between the structure of the left hip-joint, since operation, and that of the right (healthy) hip-joint.

Dr. Parry replied that it was said that cartilage formed on the end of the bone, but he had not had this confirmed in his experience, and supposed that there was formation of fibrous tissue.

Dr. Robertson remarked that more than half an inch must have been taken away, and yet the shortening was only half an inch, so that there must have been new-formation of tissue to make up the deficiency.

Dr. Parry—The acetabulum would be filled up by granulation tissue.

Dr. Workman thought that they would hardly expect much shortening now because, owing to the relation of the neck of the femur to the shaft in a child, the diminution was rather of the breadth than of the length of the femur. There was not the same firm support, however, left to the upper end of the bone, and he expected that, after continued use of the limb, there would be upward movement, and shortening would become more apparent.

Mr. Maylard had nothing to say about the case except that it spoke for a good result from the operation, and was surgically perfect. As the child grew, he expected that the shortening would entirely disappear, and that one would afterwards be hardly able to detect which leg was the one which had been affected.

Dr. Parry had raised many important questions, and in regard to some of them *Mr. Maylard* thought with him. As regards the naming of cases as "hip-joint disease," they should distinguish cases in which there was involvement of the head of the femur and of the acetabulum from cases in which the term "epiphysitis" described the condition. One must in one way include the latter in a grouping of "joint" cases, the epiphyseal line in the hip being within the capsule, but it was important to draw a distinction between the two classes. They differed in their results—cases of epiphysitis leading to the detachment of the head of the femur and giving good results. Where more strictly it was the joint that was involved, it was very frequently the anterior part of it, as *Dr. Parry* had pointed out. With regard to the position of the limb immediately after operation, he did not think that of much importance. He had believed that *Dr. Macewen's* reason for putting the limb at right angles was to get good movement afterwards. The

danger was to get too much abduction of the limb, and thus he himself liked to use a double splint to prevent this.

II.—FOL'S FLUID FOR RAPID HARDENING.

By DR. A. G. AULD.

This is a fluid of the following composition :—

Saturated aqueous solution picric acid, .	10 parts.
1 per cent chromic acid,	25 „
Water,	65 „

It was introduced to the Pathological Laboratory of the Western Infirmary by Dr. Auld, more than a year ago, and has been approved of by Dr. Coats. Tissues prepared by it can be examined in from twelve to twenty-four hours. The fresh tissue is cut into *very small* pieces and placed in the fluid. When removed, it is cut by the freezing microtome without any further preparation. The resulting sections are already stained by the picric acid, and in many cases no further staining is required. Further staining, however, may be made with alum-carmin or logwood. The tissue should not be left more than twenty-four hours in this fluid, as it will become too brittle.

III.—SPECIMENS OF THE PIA MATER IN BRIGHT'S DISEASE, AND SPECIMENS OF CHRONIC KIDNEY DISEASE.

By DR. A. G. AULD.

The notes read by Dr. Auld in connection with the microscopical demonstration of these specimens appeared as an original article in the *Lancet* of 30th January of this year, under the title, "Observations on Certain Disputed Points in Renal Pathology."

The first part of the paper deals with the interpretation of the morbid changes found in the pia mater and in the skin. Opportunity had been taken to examine the pia mater from all brains available in the Western Infirmary during fifteen months, examination being made by means of high powers after careful hardening. After referring to the views of Gull and Sutton, Johnson, Grainger Stewart, and Dickinson, the result of the present observations is stated to be that in Bright's disease all the coats of the arteries are thickened. "In the vast majority of cases the inner coat shows endarteritis. This change seems very constant in fatty kidneys in adults, though it is occasionally absent in contracting kidney."

Johnson's contention that the muscular coat is truly hypertrophied is accepted as correct, and his description of a longitudinal layer of muscle cells in addition to the hypertrophied circular layer is also held to be confirmed. "There are, however, some cases in which the muscular hypertrophy is far from being a marked feature, and when the disease is far advanced, degenerative changes of an aggressive character attack the hypertrophied fibres." The thickening of the outer coat is said to be undoubted, and to "owe its origin to a slowly progressing inflammatory new formation of connective tissue," the effect of reagents being, "after all, but unimportant." The corpuscular activity leading to this new formation is, further, held to be "manifest throughout the connective tissue of the pia mater generally, leading to a more or less general thickening."

"As regards the *skin*, the sections show that the muscular coats of the arterioles are much thickened. This is generally to be observed. In one case, in which the œdema was a very marked feature, the derma is unduly cellular; clusters of leucocytes seem to be scattered throughout its substance. It seems as though some inflammatory process were at work, and hence we find here considerable support to the view of Cohnheim as to the cause of this form of œdema."

Cases of chronic Bright's disease are divided into two groups, so far as the lesions of the kidney itself are concerned. "In one, the lesions of the glomeruli and of Bowman's capsule are very marked, and overshadow the other lesions; in the other class the reverse holds good." The changes in chronic glomerulitis are thus described:

"1. The epithelial cells covering the glomeruli swell and assume a peg-top or columnar shape (well seen in the section placed under the microscope); they then fall into the periglomerular space and assume a rounded form.

"2 A similar desquamation of the cells lining the capsule occurs, but without the intervention of the columnar shape.

"3. The connective tissue nuclei, and likewise the nuclei of the capillary walls of the Malpighian tufts, germinate, multiply, and give rise to a new growth of tissue between the capsule and the tuft, the capillaries undergoing hyaline thickening the while. In one specimen we see a band of new tissue stretching across the peri-glomerular space to which numerous epithelial cells have attached themselves—a phenomenon which has been questioned by Ziegler and some others.

"4. Not infrequently the capsule itself becomes split up into

several layers, giving the appearance of two or more capsules for part of its circumference. This dissecting process is accomplished by cells from the surrounding connective tissue. In other and more advanced cases the capsule appears striated and concentrically thickened, and blends with the sclerosed glomerular tuft.

"It is difficult to see why these lesions should occur in some cases and not in others; they are by no means confined to scarlatinal cases; and, moreover, in post-scarlatinal nephritis which has assumed a chronic form they are occasionally absent."

The article concludes with some original considerations—based almost entirely on the histological appearances—as to the cause of the polyuria occurring in cases of contracting kidney. To begin with, Dr. Auld disputes the theory that normally the tubular epithelium absorbs water passing from the glomeruli—"for if it did, we should have the extraordinary phenomenon of a cell simultaneously secreting and absorbing a waste product." Assuming that in health the epithelium of the tuft is pre-eminently a water-secreting epithelium, he asks, "Now, what is observed on examining microscopically sections of granular kidneys? It is found that the glomeruli are agglomerated together in more or less wedge-shaped areas of sclerotic tissue, the intervening spaces being occupied by dilated tubules, whose basement membrane has escaped much alteration, but whose vascular supply is abnormally abundant. Now, in the majority of cases, 80 per cent of the Malpighian corpuscles in these sclerosed areas are totally functionless. How, on any pressure theory, can the few remaining tufts manage to secrete the large quantity of water which flows from the kidney, especially when, in addition, it is considered that the tubules from the patent glomeruli are not infrequently snared by the cirrhotic tissue? It seems to me," Dr. Auld proceeds, "that this view must be abandoned, and the seat of the secretion of water sought for elsewhere. This, I believe, to be found in a peculiar modification or transformation of the tubular epithelium in the areas which have escaped destruction. It is a remarkable fact, acknowledged by all observers, that the normal glandular epithelium in this situation becomes converted in granular kidney into a thin, flat epithelium—an epithelium, in fact, resembling that normally lining the glomerular tuft. This may be readily seen in the sections. Is there, therefore, any reason to deny that this peculiar modification of the epithelium is but a compensatory process of nature whereby the elimination of water is effected?

Further, these epithelial cells have bright-staining nuclei which proves them to be in an active state. If it be not conceded that this epithelium actually subserves a modified function—that of secreting a much larger percentage of water than normally—I think it at any rate cannot be denied that it more readily permits a passage outwards of water from the underlying blood-vessels, and that it ceases to become a water-inhibiting epithelium, as in the normal gland.

“This view is supported by the anatomical appearances, by the constant diminution of the urine in cases where the epithelium is gravely injured, and by many of the kindred facts of pathology.”

Dr. Coats thought that a good deal might be said about *Dr. Auld's* specimens and observations. In the first place, in regard to the arteries of the pia mater, he did not think that *Dr. Auld* went into the question—and it was the most important question—as to whether the alterations there were primary or secondary. *Dr. Coats* had been led to the belief that the alterations in the arterial walls in *Bright's* disease in the pia mater and other parts of the body, with perhaps the exception of the skin, were secondary, and that the thickening of the coats was just such as one got from increased blood pressure. This thickening was specially of the muscular coat, but he was not surprised to hear that the other coats were similarly altered. This view, that the arterial changes were secondary, he had held for some time, and he believed that the increase of the muscular coat was a physiological process to prevent overloading.

With regard to polyuria, *Dr. Coats* said that, if there were objections to the old theory, there were still greater objections to the theory brought forward by *Dr. Auld*. That the epithelium should suddenly change its function, and produce water, would be most surprising, and besides, the epithelium of chronic *Bright's* disease was just as far as possible from any opportunity of secreting water. If they injected such a kidney they would find that the epithelium was further removed than normal from the blood-vessels by the new formed connective tissue. He could not see the force of *Dr. Auld's* objection to the view that the urine, which passed through the glomeruli, was afterwards concentrated by the action of the epithelium. *Dr. Auld* had thought it absurd for the same structure to absorb and to give out, but with this he could not agree; they had such a structure in the pulmonary surface. Or, rather, *Dr. Auld* had said that it was absurd that one structure should absorb and give out

an excretory substance, but he did not think that water was in this sense an excretory substance. It was not as if there were two currents flowing in opposite directions through the epithelial cells—supposing both processes to be going on, they must both imply molecular changes. To his mind, the fact that in chronic Bright's disease the urine was so very watery, and the fact that the epithelium has its character altered from that of a secreting epithelium, seemed to confirm the view that normally the urine as secreted by the Malpighian tufts is afterwards concentrated in its course through the tubules. Dr. Coats would, further, venture to say that Dr. Auld had rather exaggerated the change in the glomeruli in chronic Bright's disease. If one examined many sections, many glomeruli would still be found pervious, and there would not be seen such an absolute destruction as one might infer from Dr. Auld's remarks. In this connection there was one observation he would like to make. During the discussion on the pathology of albuminuria in the Society some years ago, he (Dr. Coats) had suggested (he did not know that the suggestion was original) that to a certain extent in the pyramidal portion there might be a similar function to that in the Malpighian tufts—that there water might be passed on into the tubules. The relation of the vessels in the pyramids was a good deal like that of the arteries supplying the Malpighian tufts—*i. e.*, there are arteries dipping down into the pyramids, and communicating with the straight vessels, and perhaps in chronic Bright's disease, these, being less affected than the Malpighian tufts, might take up the function of secretion of water. Dr. Coats recognised the industry and care, and also the power of seeing things, which Dr. Auld had manifested in this, as in previous investigations.

Dr. Workman had one word to say about Dr. Auld's theory. From experiments he had made in his own case, he had concluded that the cells had very little to do with the quantity of water excreted by the kidneys. If a very large quantity of water were swallowed into the stomach, it was quickly absorbed, and almost immediately excreted by the kidneys. In his opinion, this was really just a matter of filtration, and it did not matter much what lining the tubules and Malpighian tufts have. It was quite likely that the escape was to a less degree through the cells than through the inter-cellular substance. A similar view with regard to the mucous membrane of the intestine had been taught him by Klein, who believed that there were actual channels, but he (Dr.

Workman) doubted if these could be seen. Such a view would make it easier to believe that when the cells are removed in granular nephritis there would be a freer escape for the water.

Dr. R. M. Buchanan said that he had always thought it quite unnecessary to assume that the lining epithelium of the tubules had anything to do with the excretion of water by the kidneys, and so far he agreed with Dr. Auld. He considered that the water was filtered along with its salts by the Malpighian tufts, and that the epithelium had to do with the elimination chiefly of urea. In Bright's disease, sclerosis of the glomeruli, and degeneration of a large part of the tubules take place *pari passu*. He did not see anything in a cirrhotic kidney to oppose the view that the water was still excreted by the Malpighian tufts. They would find in a cirrhotic kidney a number of glomeruli remarkable as showing a healthy appearance among those which were sclerosed, and these healthy ones he had noticed to appear larger than normal, though perhaps this appearance might have been deceptive.

With regard to the development of tissue in the middle coat of the arteries, he thought this condition practically the same as occurred in the heart itself. There was hypertrophy of the left ventricle, and so in the corresponding part of the arteries there was a similar development, probably, as Dr. Coats had said, quite a physiological compensatory process.

Dr. Lindsay Steven had looked with great interest at the specimens which Dr. Auld had brought under their notice, and admitted that the sections of arteries shown bore out the views which he had expressed as to the causation of the changes there. He could not accept, however, his view as regards polyuria; and, in addition to what Dr. Coats had said, he would point out that if there was a destruction of Malpighian tufts, there was also a very large destruction of uriniferous tubules; the tubules, besides, were separated from the blood-vessels by new formed tissue, as Dr. Coats had said. He quite agreed with Dr. Coats that even in bad cases a large number of functionary active Malpighian tufts still remained, so that he could not admit Dr. Auld's theory. There was nothing very contradictory in the fact that water after excretion should be concentrated by reabsorption by the epithelium. He must congratulate Dr. Auld on the beauty of his sections.

Dr. Robertson said that the discussion had brought back to his mind the old discussion between Gull and Sutton and

Johnson. He agreed generally with Dr. Coats in his explanation of the hypertrophy of the coats of the vessels. Dr. Auld had contended that not only the middle coat, but also the internal and external coats were altered—that, in fact, the whole vessel was more or less thickened. So far as the middle coat was concerned, this might be described as physiological; but, for the other two coats, the change must be described as something more. The difficulties in the circulation might thus be described as causing half-morbid half-physiological changes in the arterioles.

With regard to the observations about polyuria, he would hardly think it likely that the epithelial lining would take on a special function, and he considered that there were sufficient glomeruli left for the excretion of the water.

Dr. Steven wished to add to his former remarks that, so far as he could recollect, it did not correspond with his experience that the pia mater in the majority of cases of Bright's disease was opaque.

Dr. Coats said that that was quite so, and that one so often saw a milkiness of the pia mater, that that could not be said to be due to the Bright's disease when seen in cases of that nature.

Dr. Auld, in reply, said that he had not mentioned the opacity of the pia mater on his own authority: he had it on the statement of Dr. Saundby. He defended himself against Dr. Coats's criticism of his paper. In the first place, he had not felt himself called upon to theorise as to the explanation of the arterial changes, but merely to demonstrate these changes. With regard to the theory of the secretion of urine in granular kidneys, he would ask Dr. Coats how he would explain the excretion of sweat seeing that in the sudoriparous glands there was a considerable amount of connective tissue between the gland tubules. However, in granular kidney, the cirrhosis was confined to areas, and the remaining tubules had little interstitial tissue around them; also blood flowed freely from the cut surface. Neither Dr. Coats nor Dr. Steven had offered any explanation of the difference in the appearance of the cells. He still held to his theory that the normal inhibition to the passage of water into the tubules is withdrawn in Bright's disease. If they looked at the sections they could see that it was unintelligible that 100 oz. of urine could be passed daily through the few Malpighian tufts still unaffected.

Dr. R. M. Buchanan remarked that the increased blood pressure offered sufficient explanation.

Dr. Auld did not consider that it did.

IV.—SECTIONS OF ROUND-CELLED SARCOMA FROM NECK OF CHICKEN.

BY DR. T. K. MONRO.

The following is Dr. Monro's report:—

The tumour was removed from the postero-lateral region of the neck of a hen, about 4 months old. When first noticed it was two or three times the size of a marble, and it obviously involved the skin, though there was no ulceration. It felt exactly like a fibroma. During the following week, it grew with striking rapidity, became more firmly connected with the deep structures of the neck, and attained the size of a hen's egg. The growth was then removed with the knife, but unfortunately the animal died by sudden failure of respiration, after it seemed to have completely recovered from the effects of the chloroform.

The fresh cut surface of the tumour was soft, and of a greyish-white colour, with some yellow areas.

Microscopically, the structure is seen to be highly cellular, the cells being small and round. A few thin fibrous strands intersect the tumour-mass, which is advancing in all directions, having already, on the one side, attacked the epidermis, and on the other invaded a neighbouring muscle. The growth seems to have originated in the deep layers of the skin, or possibly in the subcutaneous tissue.

Such tumours appear to be not uncommon. A fibro-sarcoma from the neck of a hen was shown last month (December, 1891) at a meeting of the Royal Academy of Medicine in Ireland: it had been present for about a year. A similar growth, said to have been a round-celled sarcoma, is figured at page 237 of J. Bland Sutton's *Evolution and Disease*.

Mr. Maylard thought the Society ought to encourage the exhibition of specimens such as the present. Diseased conditions in animals were important not only in themselves, but because of the light that comparative pathology threw upon the study of disease in man.

Dr. Coats concurred in what Mr. Maylard had said.

V.—SPECIMENS FROM CASE OF LEUKÆMIA.

BY DR. T. K. MONRO.

The notes upon this case are published as an original article at page 349.

VI.—SARCOMA OF THE CHOROID.

BY DR. T. SPENCE MEIGHAN.

Dr. Meighan, in showing the specimens from this case, gave the following account of it:—

E. G., aged 2 years, was admitted to the Glasgow Eye Infirmary in July, 1891. The mother stated that the child's right eye had become very large, and was protruding from the orbit; she also said that she noticed a whitish shining body deep in the eye when the child was six weeks old, and that this white body gradually increased in size until it filled up the interior of the eyeball. During the last few months the eyeball had gradually protruded more and more from its socket.

State on Admission.—The child looks pale and fretful. The right eyeball is seen to be much enlarged, and protruding so much that the eyelids cannot close over it; the tension of the ball is increased; the cornea enlarged to double the normal size; the anterior chamber is filled with a whitish substance, so much so that the colour of the iris cannot be made out, but the iris of the left eye is blue. The eyeball is pretty firmly fixed, and barely moves with the fellow eye. There are some large vessels on the ball, and the conjunctiva is injected. There are no swollen glands in front of the ear or in the neck.

Enucleation was advised, and the operation was performed under chloroform a few days after admission. In performing the operation the palpebral fissure was too small, and consequently the external canthus was divided to allow exit. In the course of the operation it was found that the tumour was growing outside of the ball and up to the apex of the orbital cavity, and therefore the whole contents of the cavity were cleared out, and what little tissue remained was scraped off with a Volkmann's spoon. The child was dismissed in a few days.

She came to the Infirmary again in October pale and emaciated, with a large tumour, the size of a fist, growing from the right orbital cavity, with some offensive discharge. I again operated under chloroform, taking away the whole of the tumour and nearly all the eyelids, entirely clearing out the whole of the orbital cavity. The recovery was good, and she was dismissed in a few days.

Dr. William Weir, who saw the case before admission to the Infirmary, has been kind enough to give me the following notes of its present condition (January, 1892):—

There is a recurrence of the growth, with some offensive discharge; there is extreme emaciation of the body and limbs; the belly is swollen, and margin of the liver is felt one or two inches below the costal margin; no irregularities nor nodules are to be felt, however. The tumour is 3 inches by $2\frac{1}{2}$ inches in size, and projects fully 1 inch from the general level of the face; a gland in front of the ear is slightly enlarged; there is no special indication of affection of the brain; the child is quite sensible, and takes food fairly well. The pulse is very small, and the strength is gradually diminishing—indeed, the weakness is so great that Dr. Weir would not advise another operation, as he believes the child will only survive a few weeks.

A good deal of attention has been drawn to cases of sarcoma of the choroid of late years, chiefly by Fuchs and Hirschberg; and lately, in the *Archives d'Ophthalmologie*, Dr. Lagrange has tabulated a collection of thirty-four cases. In only two of these do I find that the subject was two years of age; and, indeed, from collected statistics by Fuchs and others, I find that the disease is rare before 10 years of age; only 11 out of 259 cases collected by Fuchs occurred before the age of 10. And I would further remark that, of the two kinds of sarcoma which affect the choroid—viz., the melano-sarcoma and the leuco-sarcoma—the latter form of the disease is met with, on the whole, at an earlier age than the melanotic variety. The pigmented cases, however, are much more common in after years. Of the white variety, the round and spindle-celled sarcomata are the most common. The case before us is one of the round-celled form, and from the naked eye appearance, and also by the the microscope, I think the tumour originated at the posterior pole of the eye, and after it had grown to a certain size it perforated the coats and extended outside the eyeball, filling up the orbital cavity. There are also some growths from other parts of the choroid and ciliary body. The optic nerve in this case does not appear to be affected by the disease.

Dr. R. M. Buchanan's pathological report is as follows:—The eyeball is consolidated, and a mass of soft tumour tissue is continuous with it backwards around the considerably elongated optic nerve. On section, the growth is seen extending through the sclerotic to the outer side of the nerve. Areas of tumour tissue are visible in the ball, mostly disposed around the sclerotic surface and in the ciliary regions. The microscopic characters of the tumour are those of a round-celled sarcoma. The optic nerve is involved at its entrance,

but there is no invasion of tumour tissue backwards within the sheath.

The large recurrent tumour, subsequently excised, is in bulk almost equal to that of the clenched fist, soft, and very white, like brain substance. Microscopically, it is a round-celled sarcoma, with an abundance of delicate blood-vessels.

Dr. Coats asked if the round cells in the two tumours were of the same size.

Dr. R. M. Buchanan—Yes.

Mr. Maylard asked if there were any brain symptoms, and it was replied that there were not.

Dr. Coats further asked *Dr. Meighan* if he considered that the tumour had started in the choroid.

Dr. Meighan replied that he did.

GLASGOW SOUTHERN MEDICAL SOCIETY.

SESSION 1891-92.—MEETING XIV.

DR. JOHN BROWN *in the Chair.*

I.—THREE CASES OF LARYNGOTOMY.

BY DR. WALKER DOWNIE.

Dr. Downie read notes of three cases in which he had performed laryngotomy; in two, the operation was resorted to for the removal of growths; in the third, for the relief of laryngeal stenosis.

In the first case, a man, aged 53, there was a large fibroma of such a size, and so situated, that it could not be removed by an endo-laryngeal operation. Tracheotomy was hurriedly performed for relief of dyspnoea, and the major operation performed subsequently.

In the second case, a boy, aged 10, the trachea was opened for relief of dyspnoea, and the major operation performed on account of the wide distribution of the papillomata. Here the warty growths studded the interior of the larynx and trachea, and three sprang from the vocal cords.

In the third case, a man, aged 42, the larynx was opened to permit of the removal of a quantity of new formed tissue, and to re-establish mouth breathing.

In all three cases he not only performed thyrotomy, but

finding the space thus given far from sufficient for the satisfactory performance of the intra-laryngeal portion of the operation, he divided the cricoid cartilage and the upper two rings of the trachea, thus performing laryngotomy in the fullest sense of the word.

He employed Trandelenburg's tracheal tube, used to prevent blood entering the trachea during the operation, in the first case only. He found it so much in the way that, in the subsequent cases, he preferred to do without it. If sponges on holders be smartly used, no blood need be allowed to enter the trachea. He stated that, compared with the operation in the adult, laryngotomy in the child is a comparatively easy operation, in great measure on account of the elasticity of the various cartilages.

The paper was illustrated by water-colour drawings of the parts; the papillomata were shown, as well as some instruments employed.

II.—DISEASE OF THE PANCREAS.

BY DR. CHARLES WORKMAN.

Dr. Workman exhibited specimens of disease of the pancreas, and gave the following history of the case:—

J. C., æt. 30 years, admitted to Glasgow Royal Infirmary, 18th September, 1890, with symptoms of acute intestinal obstruction; very cold, collapsed, and bedewed with perspiration; constant vomiting of bilious material for three days; hiccough and constipation for five days. Intense pain with tumour in the epigastrium; abdomen not generally tender to pressure. Illness of only three days' duration; been previously healthy, but always a heavy drinker.

History of Illness.—Patient was in his usual health till the 14th of September, when he had an attack of severe abdominal pain, and afterwards vomited bilious matter. This condition passed quickly away, and he felt quite well for the rest of that day and during the 15th. On the morning of the 16th, the pain and vomiting recurred. Bowels moved freely by enema on the 17th. Hiccough constantly present for last two days. Patient suffered no injury, and could ascribe no cause for the attack.

The temperature on admission was 97° F. The abdomen was distended, especially in the epigastric region, where there was distinct sense of tumour and resistance. Pressure over this part caused acute pain. The pulse was very feeble; the breathing rapid and shallow. The vomited matter had no

stercoraceous odour. There was no blood in the vomit. Patient died on the 18th September, 1890.

Autopsy.—The body was that of a well developed man, apparently 30 to 35 years of age. The legs were a good deal discoloured, and there was slight varicosity of the veins, especially of the right leg.

The panniculus adiposus was very thick. The heart weighed 13½ oz. The aortic and pulmonary curtains were competent, and the heart appeared otherwise normal.

The right lung weighed 18½ oz., and appeared normal. The left lung weighed 20 oz. There were at its apex some calcareous nodules and cicatrices, apparently the result of old tuberculosis. Otherwise the lung appeared quite healthy.

On opening the abdominal cavity, a quantity of brown fluid escaped. The small intestine appeared very empty, and somewhat congested on its peritoneal surface. The omentum was matted together and contained much fat. Over the omentum and the mesentery of the small intestine there were large numbers of peculiar rounded white plates about one-eighth of an inch in diameter, which gave the omentum very much the appearance of its being the seat of a commencing growth of mould.

The liver was hidden by the colon, stomach, and omentum.

On removing the large and small intestines, a clot was found in the small omental sac, which was evidently of pretty old standing, as it had to a great extent lost its colour, and instead of red appeared a dirty brown; the membranes about were much stained of the same colour.

Below the stomach, and in the root of the mesentery, a large mass was seen which, on cutting into, was found to consist almost entirely of pancreatic tissue. This was of very firm consistence, and about where the head of the pancreas joins the body, there was a red and black mottled patch, which appeared to be an infarction.

The peculiar fungus-like patches extended also in some degree over the parietal peritoneum.

The liver weighed 76 oz., was rather soft and pale, and showed fatty infiltration in patches.

The spleen weighed 7½ oz., was soft, but otherwise normal in appearance.

The left kidney weighed 5½ oz., and appeared quite normal.

The right kidney weighed 4½ oz., and showed a slight amount of congestion. The capsule was also slightly adherent.

Dr. Workman made some remarks on the rarity of the disease, and showed microscopic specimens of the pancreatic mass.

III.—CANCER OF THE STOMACH AND LIVER.

BY DR. CHARLES WORKMAN.

Dr. Workman next showed a specimen of cancer of the stomach and liver.

The patient gave, on admission to hospital, a story of malaise of four weeks' duration, then swelling appeared in the right hypochondrium. This swelling was painful on pressure and nodular. During residence in hospital, four weeks in all, the growth increased rapidly. The nodules could not be felt to be umbilicated. There was no history of dysentery, and there was only the malaise of four weeks to draw attention to the alimentary tract. No history of jaundice. Patient had suffered from "fever and ague;" was temperate; no history of syphilis.

Autopsy.—Heart and lungs appear normal. The spleen and kidneys are almost healthy, the latter showing a little granular and fatty change.

The stomach was almost empty. In its lesser curvature, close to the pylorus, there was a tumour the size of a hen's egg, firm and hard. On opening the stomach the tumour was found to be deeply ulcerated. The rest of the organ looked pale, but otherwise healthy. The pylorus and duodenum were not at all involved in the tumour. Lying between the tumour and the pancreas, there was a secondary tumour, apparently an enlarged lymphatic gland. The pancreas appeared quite healthy. The liver was enormously enlarged, weighing 140 oz. It extended down to the level of the umbilicus. In it there are a large number of secondary nodules of various size, and having for the most part an umbilicated surface. Some of these nodules are the size of a hen's egg.

The diaphragm was non-adherent to the liver, except at one point corresponding to the position of one of the large nodules. At this point there was a red swelling on the under surface of the diaphragm, covered with fibrinous exudation. On microscopic examination of this swelling, there are found to be great numbers of newly formed vessels present, ending near the surface of the membrane in capillary loops. These vessels were filled with blood corpuscles. No cancerous tissue could be found in this swelling.

Section of one of the nodules from the liver was examined microscopically, and found to consist of a loose fibrous stroma, forming large alveoli, in which are numerous closely packed

distinctly nucleated epithelial cells. In the more recent parts of the nodule the cells are regular, and somewhat cubical in shape, the masses of epithelial elements resembling the gastric tubular glands.

In other parts all regularity is lost, and the cells are packed together in confused masses. The tumour in the stomach shows the structure of rapidly growing cancer, with very little alveolar stroma. It may be described as an acute scirrhus.

Drs. Brown and Couper made remarks on the specimens shown by *Drs. Downie and Workman*.

GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

SESSION 1891-92.

MEETING IV.—24TH FEBRUARY, 1892.

The President, DR. HALKET, in the Chair.

DR. M. CAMERON showed (1) a 3 months foetus in its amniotic sac, the chorion having been reflected—the remains of the umbilical vesicle were distinctly shown; (2) twin foetuses in their membranes; (3) large solid malignant tumour of the ovary, about 4 lbs. in weight. It was said to be a colloid cancer.

DR. H. ST. CLAIR GREY showed (1) two ovaries which he had removed along with a fibroid; (2) a small ovarian tumour; (3) a large fibro-cystic tumour of the uterus.

DR. TINDAL showed a mole about the size of a large filbert.

DR. REID showed enormously thickened membranes. The placenta had been very firmly adherent.

DISCUSSION ON TEDIOUS LABOUR.

Dr. Murdoch Cameron opened the discussion. He said it was such a wide subject that he would limit his remarks to cases caused by inertia, premature rupture of the membranes, and faults on the part of the uterus and soft parts. Premature rupture of the membranes should always be avoided. In cases of inertia he advocated massage of the uterus, not com-

pression, as was advised by some authorities. In a number of his Cæsarian sections he had noticed numerous very distended veins in the region of the ovary, and he thought if much force were used there would be great danger of inflammation being set up in them, and serious results might follow. When the os was fully dilated forceps should be used before the patient became exhausted. After the membranes have been ruptured for some time, he considered turning a dangerous proceeding, as laceration occurred much more frequently than was generally supposed. In cases of cystocele it should be pushed up, and the same treatment used for an oedematous anterior lip. Deviation of the uterus was sometimes a cause of obstruction. In anteversion the anterior lip of the cervix was usually stretched over the head, while the os was high up and far back. Spasmodic rigidity of the cervix was best treated by opium in full doses (2 grs.) The effect was marvellous in many cases. He condemned ergot. He had not used it for many years, and since giving it up he had not seen a case of hour-glass contraction of the uterus. In cancerous affections of the cervix the question of incision was one to be carefully weighed, as one could never tell how far the tear might extend. If the cervix would not dilate he would advise Cæsarian section. Delay was sometimes caused by bridles in the vagina. If these would not give they should be incised. He had never seen a case of prolapse of the uterus. Vegetations around the labia were sometimes seen—generally looked upon as condylomata. Persistent hymen was a very rare condition. Vaginismus was another cause sometimes given, but was very rare.

Dr. W. L. Reid said many cases were due to slow dilatation of the parts, or to defective action of the uterus in women who bore children in rapid succession, especially if the head were large. One should have great patience, and give an opiate. He believed in opium in small doses, frequently repeated, and also in chloral. If the head were large use forceps.

Dr. S. Sloan had found an enema of salt and water act admirably, by causing uterine action reflexly. He used it in nearly all his cases. A cupful of hot beef-tea he had sometimes found act like a charm. In anteversion of the uterus he put on a binder, drawing it in at the back, so as to shape it to the abdomen. Friction on the posterior wall of the vagina he had found useful. He gave ergot *ante-partum* in about 1 per cent of his cases, but only when there was full dilatation and he had his forceps at hand. When the os was far up, by

hooking the fingers into it and drawing it down, it would be found to dilate rapidly. He thought that after the age of 40 the perineum dilated easily, and he had found no difficulty with it in primipara.

Dr. Pollok considered massage was not practicable, as it would have to be continued a long time. When the os was fully dilated and the parts natural, forceps should always be used. Opium, he considered, would have a bad effect on the foetus if delivery were delayed any length of time.

Dr. Richmond spoke strongly in favour of compression by means of a binder.

Dr. St. Clair Gray said he had found opium most useful in irregular contractions of the uterus. Dilatation of the cervix, by means of bags and by the band, was a thing of the past. In one case, where the forceps failed, he had expelled the child by pressure. He had seen two cases of bridles in the the vagina, which he had incised. He had seen five cases of persistent hymen.

Dr. Cullen spoke favourably of the action of salt enemata.

Dr. Miller said he would have liked to have had the length of time mentioned that one should wait before using forceps. In primipara he usually allowed three hours of a second stage before applying forceps. In rigidity of the cervix he had found opium very useful. Quinine in 5 grain doses, repeated in an hour, he had used with good results. He had seen a case where the cervix was prolapsed, and he had delivered with forceps.

Dr. Tindal had occasionally found vaginismus, but he considered it was due to too frequent examinations. A full bladder would cause delay, and when emptied delivery would quickly follow. Cicatrices in the vagina were not uncommon. In rigid perineum transverse incisions were very useful. In multipara he had found strichnine given for some little time before labour very useful in toning up the uterus.

Dr. Stark said he did not now apply forceps nearly so often as he used to do. He preferred allowing nature to work. Opium was not always successful. Enemata were very useful. Transverse incisions were very useful to save the perineum. Rupturing the membranes he found very useful in some.

Dr. Jardine related a case he had seen in consultation. The woman, a primipara, had been in labour three days, her temperature and pulse were over 100, tongue furred, and teeth covered with sordes. The cervix would admit one finger, and there was a greenish foetid discharge. Under chloroform he dilated with Barne's bags, and a living child was delivered by

means of forceps. The patient made a good recovery. He had also seen a case of complete occlusion of the os which had to be incised before delivery could be effected.

The President was strongly in favour of having patience in tedious labour. He very rarely used ergot. He had found the parts dilate rapidly under chloroform.

Dr. Cameron, in his reply, said that after giving a full dose of opium he usually waits half an hour to see its effect before leaving the patient. The woman will either have gone to sleep or dilatation will be advancing rapidly, in which case he remains, as delivery will take place almost immediately. He has never seen bad results to either mother or child from opium. He has never seen a case of *post-partum* hæmorrhage due to opium. Massage, he said, caused almost immediate contractions to be set up. He had never made transverse incisions to save the perineum, and was strongly opposed to them. The straight forceps, he believed, frequently lacerated the vagina and perineum.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

SURGERY.

By HENRY RUTHERFURD, M.B.

Fistula in Ano in Phthisis.—Gibbes points out that a sinus exists in the normal contracted state between the external and internal sphincters of the anus. The sinus is about one-eighth of an inch in depth, it widens out at the bottom, and in the interior wall there is a lymph follicle which is in close contact with the epidermis. This mass of lymphoid tissue resembles an ordinary solitary gland.

"It is now a well known fact from experimental investigation that the tissues first affected after inoculation with phthical material are those of the disseminated lymphoid follicles in the lungs, spleen, and other parts; it is therefore perfectly justifiable to conclude that in a case of general tuberculosis this lymph follicle may become the seat of tubercular change, followed by breaking down and subsequent ulceration. This ulceration process would have to extend only a short distance internally to involve a so-called sweat gland, the duct of which passes upwards through the anterior fibres of the external sphincter, and there opens on the surface. In this way there is direct communication with the mucous membrane about half an inch or less inside the external sphincter. . . . Some cases of fistula in ano are described in which the external opening exists outside the external sphincter. These cases may be accounted for by the ulceration extending outward until it reaches the body of some of the numerous glands which lie outside the external sphincter with their duct leading directly to the surface."—(Heneage Gibbes, *Practical Pathology and Morbid Histology*, 1891.)

Simple Fracture of the Femur, and Fracture of the Humerus involving the Elbow-joint.—Papers on these two common injuries appear in the *Philadelphia Medical News* of 26th September and 3rd October—the former by Stephen Smith, the latter by Lewis A. Stimson. "These excellent papers put with knowledge and dignity our position that an absolutely successful treatment of an oblique fracture of the femur may mean stiffness of movement for a year and shortening to an inch, and that in an intracapsular elbow-joint fracture the very best and most prolonged treatment may in some cases result in a quite distinct amount of interference with movement of joint."—(*Edinburgh Medical Journal*, December, 1891.)

On the Results of Treatment of Simple Fractures of the Femur.—The following report was presented to the last meeting of the American Surgical Association (Washington, September, 1891) by a committee which had been appointed at the previous annual meeting:—

"The question referred to your Committee has an important bearing upon the jurisprudence of surgical practice. One of the most frequent causes of prosecutions of surgeons is the alleged maltreatment of fractures of the femur." A circular had been sent to all the members of the Association. "The Committee has reviewed the several questions raised, and endeavoured to secure a common ground on which the Association can take its position, and on which members can individually stand before the courts.

"(1) *Bony Union.*—The necessity of firm bony union does not admit of discussion. The amount of callus should not be taken as a criterion of the success of treatment.

"(2) *Relation of the Long Axis of the Fragments.*—While it is the aim of the surgeon to restore the normal relation of the long axis of the fragments, yet it is generally impossible to secure exact apposition of the fracture surfaces, nor can the normal long axial line be restored with mathematical precision.

"(3) *Correspondence of the Anterior Surface of the Fragments.*—On this depends the position of the foot. The result of treatment, to be satisfactory, requires that the anterior surfaces be in the same plane.

"(4) *Length of Limb.*—This was formerly regarded as the test of success of treatment. The records of the past show that shortening was the universal rule. The discovery of the natural discrepancy in the length of the lower limbs has considerably modified our estimate of this test. Ninety per cent of healthy, uninjured persons have lower limbs of unequal lengths. In 35·8 per cent the right limb is the longer; in 54·3 per cent the left is the longer. If the amount of shortening does not exceed the average natural difference in the length of the limb—namely, about half an inch, the result will be in accordance with the laws of nature in the conformation of the lower extremities. If the shortening does not exceed the extreme limits of difference in the lengths of the natural limbs—namely, about 1 inch, the result should be considered as satisfactory. An unsatisfactory result, as regards shortening, exists only when the amount of shortening exceeds 1 inch.

"(5) *Lameness.*—This is a symptom of variable importance. Some will have a limp with a quarter inch shortening, while others will not limp with half an inch or 1 inch shortening. In many cases the limp disappears with time, or, if it continues, it is the result of careless habits of the patient.

"(6) *Restoration of Function.*—Essential to the function of the femur is the strength of the femur at the seat of fracture, free and unimpeded action of the muscles, and proper motion of the knee-joint. The determination of the degree of restoration cannot be made for at least one year after the cessation of treatment.

"(7) *Conditional Results.*—There is a class of cases in which our estimate of results must be based upon a careful study of the special circumstances connected with the treatment of each case. Results widely different from those already given must be regarded as satisfactory when we consider the circumstances under which the treatment is necessarily pursued. The treatment may have been conducted under circumstances in which it was impossible

to secure proper apparatus, or the injury may have involved other parts, so as to prevent the patient from taking the necessary position, or the patient may have suffered from delirium or other malady.

"The following conclusions were presented. A satisfactory result has been obtained in the treatment of fracture of the shaft of the femur:—

"(1) When firm bony union exists.
 "(2) When the long axis of the lower fragment is directly continuous with that of the upper fragment, or the axes are on nearly parallel lines, thus preventing angular deformity.

"(3) When the anterior surface of the lower fragment maintains nearly its normal relation to the plane of the upper fragment, thus preventing undue deviation of the foot from its normal position.

"(4) When the length of the limb is either exactly equal to that of its fellow, or the danger of shortening falls within the limits found to exist in 90 per cent of healthy limbs—namely, from one-eighth inch to 1 inch.

"(5) When lameness, if present, is not due to more than 1 inch of shortening.

"(6) When the conditions attending the treatment prevent other results than those obtained."—(*The Boston Med. and Surg. Jour.*, 10th October, 1891.)—D M'P.

On the Cause of Complications and Early Death after Severe Burns. Silbermann (*Virchow's Archiv*, Bd. cxix, p. 488).—The following is a summary of the author's observations:—

1. After severe burns not only is there an alteration in the shape of the red blood corpuscles, but there is also diminution of their vital properties, shown by their changed reaction to dessication, heat, compression, salt solution, staining, &c.

2. These changes and the presence of numerous broken up corpuscles result in the formation of numerous thrombi, occluding vessels, and causing stasis in various internal organs, especially in the lungs, kidneys, intestine, liver, brain, and subcutaneous cellular tissue.

3. These points of occlusion of vessels, which are most numerous and striking in the branches of the pulmonary artery, are formed during life.

4. There results therefore considerable obstacle to the emptying of the right ventricle, with consequent general venous stasis and corresponding arterial anæmia.

5. These conditions (general venous stasis and arterial anæmia, and local points of thrombosis and stasis) produce hæmorrhages, ulceration, and parenchymatous changes in various organs.

6. Thus may be explained, as occurring after severe burns, dyspnoea, cyanosis, coma, smallness of pulse, various lung affections, convulsions, anuria, and lowering of the body temperature.

7. The fatal result from comparatively limited burns in children may be due to (1) the more intense action of heat upon the corpuscles owing to their thinner skin; (2) the weaker resisting-power of their corpuscles; and (3) the comparative weakness of their heart and circulation generally.—(*Centralbl. f. Chir.*, 30th May, 1892.)—D. M'P.

On 124 Cases of Operation for Chronic Diseases of the Stomach and Intestines in the Hospital and Private Practice of Hofrath Th. Billroth. (*Schmidt's Jahrbücher*, Bd. 233, 1892, No. 2.)—The cases reported in this collection are only those for which resection of part of the stomach or bowel had been performed for chronic diseases such as ulcerations, cicatrices, fistulæ, and tumours.

Of 41 cases of resection of the pylorus, 7 were on men, and 34 on women varying in age from 26 to 58. Twenty-eight were for carcinoma, and one for sarcoma. Of these, 13 recovered, while 16 were fatal. Twelve were cases of cicatricial stenosis. Of these, 6 recovered, and 6 were fatal. Of the 13 cases which survived the operation of resection for carcinoma, 5 died within ten months, 2 after one year, 1 after one year and a half, 1 after

two and a half years, and 1 after five and a quarter years. Three women are living still. One was operated upon a year and a half ago; she is well, although a small nodule can be felt beneath the cicatrix. The other 2 were operated upon respectively four and a half and two and a half months ago. They are both well, and have gained considerably in weight. Of the 6 cases which recovered from resection of the pylorus for cicatricial stenosis, four—all women—are healthy, digest their food well, and have grown stout. Of 5 patients in whom the pylorus kinked from very extensive adhesions, and in which these latter had to be broken down, 2 recovered.

Gastro-enterostomy was performed in such cases as did not permit, from the extensiveness of the disease, of resection. Thirteen men and 15 women, ranging in age from 27 to 68 years, were thus operated upon—14 recovered, 14 died. The duration of life of those who recovered was from one to eight months. Their conditions were much improved.

Eleven patients were treated by resections of the intestine, varying in length from $\frac{1}{2}$ inch to 2 $\frac{1}{2}$ inches. Nine were cases of artificial anus; 1 was carcinoma. All recovered.

The cæcum was resected 24 times. In 11 cases it was for carcinoma, with 5 successes and 6 failures. In 13 cases it was resected for faecal fistulae resulting from chronic ulcerative perityphlitis—7 recovered, 5 were fatal. In one case the fistula reopened, but further operation was prevented on account of general tuberculosis.

Resection of the colon, varying in length from 2 to 4 inches, was performed in 8 cases—4 recovered, and 4 were fatal.

Resection of the rectum, with retention of the sphincter and its union with the gut, was performed 7 times. All the patients recovered.

In analysing the percentage deaths of these operations, it will be seen that in cases of pylorotomy, gastro-enterostomy, cæcectomy, and colectomy, the rate was 50 per cent, while in euterectomy and excisions of the rectum all cases recovered.—A. E. M.

MEDICINE.

By T. K. MONRO, M.A., M.B.

Alcoholic Paralysis from Multiple Neuritis in a Child 7 Years of Age.—Leszynsky, of New York (in the *Post Graduate*), records the case of a boy, æt. 7, who was brought to the Clinic with symptoms of multiple neuritis of five months' standing. The child was emaciated and rickety, and had bilateral wrist-drop, with anæsthesia in the distribution of the radial nerve. The reaction of degeneration, along with atrophy, was shown by the muscles supplied by the musculo-spiral nerve of each upper limb. Patient could not stand or walk. Both feet had "dropped," and remained in the condition of talipes equinus, the muscles involved being atrophied. There was partial anæsthesia, and the plantar reflexes were abolished, but the knee jerks were active. The urine contained a trace of albumen and a few granular casts, but no trace of lead. (It was tested on three occasions.)

Patient was said to have been in good health, until his fifth year, when he suffered for a time from feverishness, but without vomiting or convulsions. Five months before he came under observation, he began to complain of pains in the forearms and legs; these were worse at night, and were accompanied by numbness of the feet. After three months, however, these symptoms in great measure disappeared. The lower limbs had been paralysed for four weeks. Other symptoms were:—frontal headache, dyspnoea, præcordial pain, anorexia, and night sweats, but without cough. As the child had been rather feeble for two years past, the mother, who was a very ignorant woman, gave him two bottles of beer daily, and also some whisky, "to put some life into him," as she said.

Patient continued under observation for a month, and died a few weeks after his last visit to the Clinic.

The author, struck by the resemblance of the case to the multiple neuritis of chronic lead poisoning, made the most careful inquiries with regard to the possibility of this factor in the etiology, but without success; so that he feels himself compelled to look upon the illness as one which had originated in alcoholic excess.

Swellings above the Clavicle in Exophthalmic Goitre.—In his *Studies of Old Case-books*, Sir James Paget refers to a few cases he has seen where a swelling occupies the supra-clavicular fossa on one or both sides. He looks upon this swelling as a localised myxœdema, but it has sometimes been regarded as a fatty tumour. Paget's cases were all in adult women, many of whom were neurotic, and suffered aching pains in the affected parts. In some of them the tumour diminished in size after a time, and remained permanently less; but a striking feature in all was the way in which they became "puffed up," and then contracted again as the pain increased and diminished at frequent intervals.

Arthur Maude, writing in a recent number of the *Practitioner* on "Edema in Graves' Disease," describes an unusual form which he terms "transitory," inasmuch as it may last only a few hours. The dropsy takes the form of a puffy swelling of the face, neck, upper limbs, or both limbs of one side, the favourite localities, however, being the cheeks and eyelids. There may be no goitre and no exophthalmos, though the rapid pulse, tremors, and other neurotic phenomena may be present. In connection with the same disease, Rendu describes an oedematous swelling which he has met with in both supraclavicular fossæ in several cases, and he remarks that it seems to occur chiefly in neurotic women, and to depend on a disordered innervation of the cervical region. Potain had called attention to this phenomenon at a much earlier date. It is just possible that some of Paget's cases may have belonged to the same category as those last referred to, and that the relatively slight character of the general symptoms may have led the patients to consult a surgeon on account of the swellings in the neck, though these were really part of a more general malady which usually falls to be dealt with by the physician.

Acromegaly and Acromicria.—Dr. Pierre Marie published his original essay on *Acro-Mégalie* in 1885, and in 1890, his pupil, Dr. Souza-Leite, brought the whole subject up to date in a new monograph. About 40 cases have been recorded up to the present time. The principal features of this remarkable disorder, which is also known as Marie's disease, are great thickening and broadening of the hands and feet, but without any corresponding increase in length of the affected parts. The soft tissues of the palms project as huge, fleshy pads. The face grows very long; the upper jaw gets thickened and unduly prominent; the lips, tip of the tongue, different parts of the nose, orbital ridges, and eyelids are all increased in thickness. The skeleton of the trunk likewise undergoes hypertrophy, and there ensues a long series of subjective phenomena, including headache and various other pains, excessive appetite and thirst, and altered vision, with amenorrhœa, alteration in the tone of the voice, &c.

In striking contrast to a case of this kind, described by Stembo of Wilna (quoted in *Deutsche Medizinische Zeitung*), is another recorded by the same observer under the name of "Akromikrie." The latter disease, however, Stembo seems to look upon as practically identical with that termed by Professor Ball of Paris "Sclerodactylie." The features presented by acromicria are, to a remarkable extent, the reverse of those met with in acromegaly. Stembo's patient was a woman, æt. 51, who had suffered from the disease for 20 years. It began with the formation of ulcers on the fingers, and scarcely had one set of these healed, when another set appeared on the same or on different digits, and so on throughout the whole illness. The ulcers were followed by whitish cicatrices, whose number, therefore, kept steadily

increasing. The skin over the fingers became thin and shining, and difficult to move over the underlying bones, so that the movements of the fingers were impaired. The nails gradually dropped off, and the digits themselves grew shorter. In course of time, patient noticed a progressive atrophy of the whole body, but especially of the extremities; the skin grew thin, the soft tissues shrunk, and the bones became very slender. The nose and chin grew smaller, the countenance became stiff and passive, the tongue and larynx narrow, and the pitch of the voice elevated.

In both cases, then, we see a disorder which involves the whole body, but produces its most marked effects on the extremities. In the one patient, there is everywhere hypertrophy; in the other atrophy. The thyroid gland, however, is diminished in size in both.

The pathology of these morbid processes is quite obscure, but there is one very obvious lesion which has been present in all the seven cases of acromegaly that have as yet come to *post-mortem*—viz., hypertrophy of the pituitary body with deformity of the sella turcica and consequent interference with various important nerves and other structures within the cranium.

Sarcoma with Chronic Relapsing Fever.—The *Deutsche Medizinisch-Zeitung* refers to a case of Purith's, which resembles those put on record, first by Ebstein, and subsequently by several other writers, where the development of a sarcomatous tumour was accompanied by continuous fever. In the present case the tumour was a spindle-celled sarcoma of the liver, while in that published by Völcker it was an osteosarcoma; but most authorities who have met with such cases have described the new growth as a lymphosarcoma. Purith remarks [agreeing herein with J. Bland Sutton] that sarcomatosis probably belongs to the group of infectious diseases, so that its exciting cause may be sought for among the Protozoa. He found in sections of the tumour, which were prepared immediately after the *post-mortem*, and stained with methyl blue, little plates which took up the colouring matter with special avidity, and might possibly, therefore, be regarded as parasitic in their nature.

Saccharine Diabetes Consecutive to Extirpation of the Pancreas.—Minkowski returns to the experiments which he made in co-operation with von Mering, and which have demonstrated that complete extirpation of the pancreas induces diabetes in those animals that live long enough after the mutilation. He attributes contrary results in the experiments of other observers to errors in the technique.

Minkowski has tested the value of assertions recently made by two Italian experimenters (Reale and de Renzi), who say that resection of the duodenum and extirpation of the salivary glands are followed by diabetes. He has proved that removal of the salivary glands of the dog causes only a slight and inconstant glycosuria, which is not a direct consequence of the operation. Simultaneous removal of the salivary glands and the liver of the dog has the same result, so far as the development of an experimental diabetes is concerned, as simple extirpation of the pancreas. Minkowski concludes, therefore, that in the consumption of sugar, the pancreas exercises quite a specific function; but this does not imply that every glycosuria must of necessity be attributed to a functional disorder of that organ. He thinks it quite likely that other factors may play a part in the causation of glycosuria.

Recent experiments of Minkowski have shown that if, in a dog whose pancreas has been extirpated, fragments of the gland are placed in the abdominal cavity, the development of the experimental diabetes is prevented—an additional proof that the utilisation of sugar in the animal organism is intimately associated with the functions of the pancreas.—(*Revue générale de Médecine, &c.*)

Intestinal Perforation in Enteric Fever: its Prognosis and Treatment.—At the 1891 meeting of the Association of American

Physicians, held in Washington, Professor Reginald H. Fitz, M.D., read a notable paper, of which the following is a brief abstract. The thoroughness and lucidity with which Dr. Fitz has treated the subject makes his essay a valuable one:—

Perforation is found in about one per cent of all cases of enteric fever, and is the cause of death in something more than six per cent of the fatal cases. It rarely occurs in children, and is twice as frequent in man as it is in woman. It occurs in the small intestine in four-fifths of the cases. In 140 out of 167 cases there was only 1 perforation, but as many as 30 have been recorded. It usually proves fatal within a week. There is no definite relation between the severity of the individual attack of fever and the occurrence of perforation. The case may be mild or severe, and the symptoms of perforation, while usually severe, may be gradual in onset, or even absent, or at least latent.

Differences of opinion concerning its prognosis have existed for many years, and are based upon a lack of agreement as to the value of the symptoms. Though these are often called characteristic, they give evidence only of a peritonitis, general or circumscribed. This may, in enteric fever, result from a variety of causes, and fatal perforation may occur without any symptoms suggesting its presence. From careful study of numerous recorded cases the author concludes that, since perforation may take place without any suggestive symptoms, and since suggestive, even so called characteristic, symptoms may occur without any perforation having taken place, it must be admitted that recovery from such symptoms is no satisfactory evidence of recovery from perforation.

It is probable, from clinical evidence which has perhaps been hitherto misunderstood, that the vermiform appendix is more often inflamed and ulcerated than has yet been suspected. The probability of its occurrence furnishes the best solution as to the prognosis of intestinal perforation in enteric fever. Most cases of recovery from symptoms of perforation of the bowel in this disease are those in which an attack of appendicitis is most closely simulated, while the great majority of the fatal cases are those in which other parts of the bowel are implicated. Hence the prognosis of apparent perforation in enteric is to be regarded as the more favourable the more closely the symptoms and causes resemble those of an appendicitis.

Treatment by early laparotomy was first suggested by Leyden in 1884, and a case was successfully operated upon by Mickulicz in the same year, but in this case the diagnosis of enteric may be questioned. The first operation in a clear case was performed in 1887, by Lücke. Dr. Fitz found that early laparotomy had been tried in 10 cases, with 1 successful result (by Wagner, of Königshutte); while of 37 cases of circumscribed peritonitis in enteric, largely attributed to perforation, 3 recovered after incision, 17 after resolution, and 9 after the spontaneous discharge of pus.

In brief, immediate laparotomy for the relief of suspected intestinal perforation in enteric fever is only to be advised in the milder cases of the disease, when the patient's condition is exceptionally good. In all others evidence of a circumscribed peritonitis should be awaited, and may be expected in the course of a few days. Surgical relief to this condition should then be urged as soon as the strength of the patient will warrant it.

Dr. Da Costa spoke after Dr. Fitz had read his paper. He had seen two cases of early operation, both fatal. He would never sanction an operation unless a causal appendicitis could clearly be made out, or for the relief of a patient from a peritonitis.

Dr. Urller Van Hook, of Chicago (*Medical News*, 21st November, 1891), reports three cases, one of them successful, and he urges early operation in all cases. His case is certainly a clear one, but his arguments and references are not so convincing as those of Dr. Fitz, with whose work upon the subject Dr. Van Hook does not appear to be acquainted.—(*Boston Med. and Surg. Journal*, 1st, 8th, and 22nd October, and 26th November, 1891.)—D. M'P.

DISEASES OF THE EAR.

By DR. WALKER DOWNIE.

Histological Examination of the Middle and Internal Ear in a Case of Deaf-Mutism.—Dr. Arno Scheibe of Munich examined the two temporal bones in a case of deaf-mutism, and the results, as translated by Dr. Spalding, form an interesting contribution in the *Archives of Otolology*.

Shortly, the middle ear was found to be normal apart from some thickening of its lining mucous membrane, and partial degeneration of the tensor tympani muscle. In the labyrinth there was atrophy of the nerves of the cochlea, sacculus, and posterior ampulla, as well as alterations in the membranous structure of the cochlea and sacculus. This atrophy was confined to the nerves in those three parts—that is, to those three branches which, before their entrance into the petrous bone, compose the posterior ramus; while the nerves of the utriculus and the other two ampullæ which compose the other trunk of the auditory nerve—the anterior branch—were only slightly affected.

There was no trace of any former inflammation in the labyrinth, which is usually the case when deaf-mutism is associated with atrophy of the auditory nerves.

A description of the microscopic appearances in the various parts is fully given in the *Archives of Otolology*, January, 1892.

Cranial Auscultation.—In cases of vertigo associated with noises in the head, Dr. B. Ward Richardson is in the habit of auscultating the cranium (cranial auscultation) over the mastoids. When the sound is associated with cardiac murmur the bruit may be traced up the carotids and heard over the mastoids. This is increased on lying down. In cases where associated with anæmia a soft murmur may be heard, which is continuous with the first sound of the heart. It is increased on exertion; and when the heart is excited, as from the use of stimulants, a sound similar to the venous hum may be heard.

It is important to make such an examination before concluding that the noises are due to disease of the labyrinth.—(*Asclepiad*, October, 1891.)

A Tragus Retractor.—This instrument, recommended by Dr. Cresswell Baber, consists of a ring of flat metal, and the end of the band which forms the ring is bent back obliquely, and forms a blunt hook 12 millimetres in length. Fixed on the tip of the left forefinger in examining the right ear, the auricle is drawn upwards and backwards with the middle finger and thumb, and the tragus is drawn forwards by the hook of the retractor. In examining the left ear the retractor is fixed on the left ring-finger. By its help the greater part of the meatus may be examined, and surgical means applied more readily than with an ordinary speculum.—(*Archives of Otolology*, January, 1892.)

Dr. Urban Pritchard, in the *Archives of Otolology*, describes a "handy form of intra-tympanic syringe," specially for use in cases of perforation of the membrana flaccida. It may be looked upon as a modification of Dr. Hartmann's.

Acute Otitis—Cerebral Abscess—Operation and Death. By W. K. Hatch, M.D., Surgeon-Major, Bombay Army.—The patient was a man about 27 who previously had enjoyed good health. In March 1890 he had acute inflammation of both middle ears resulting in perforation of both membranæ tympani, free discharge from both, and marked deafness. In two months discharge had ceased, hearing in left ear became normal, but the deafness in right remained to a marked extent. During the next two months he remained well, but then he began to lose flesh, to complain of neuralgic pains over the right side of the head, particularly over the eye, and at the side

of the neck. These gradually passed away, then affected the left side, and later reappeared on the right. His pains increased, necessitating the use of morphia hypodermically. He became delirious, and in September an operation was performed. An incision was made behind the right ear, the trephine was applied $1\frac{1}{2}$ inch above and behind the meatus; a trocar was then introduced, and when in fully three-fourths of an inch, pus appeared; in all, $1\frac{1}{2}$ oz. was removed. A drainage-tube was inserted, and the patient awoke free from pain. Next day he became unconscious and died about noon. No *post-mortem* was permitted.—(*Lancet*, 19th March, 1892.)

The Use of Dermatot in Ear Affections.—In the *Therapeutische Monatshefte*, No. 12, for 1891, Davidsohn gives the results of his experience with dermatol in purulent affections of the ear. This substance, which is a sub-gallate of bismuth, has been recommended on account of its absorbent and antiseptic properties. He found it useful in otitis externa, and in many cases of chronic otitis media, but in some cases of acute middle ear inflammation it was not only useless, but became a source of danger from the way in which it formed cakes with the discharge. In two cases of cholesteatoma formation he found it of very great use. In its action he appears to have found it similar to boracic acid.

Styrone in Middle Ear Suppuration.—A 1 to 5 per cent solution of styrone (which is a compound of styrax and balsam of Peru) in alcohol is recommended in chronic inflammation of the middle ear. Dr. Spalding recommends it as specially useful in perforations of Shrapnell's membrane. He applies it on a small cotton swab after having had the ear thoroughly cleansed by syringing, and from results obtained he thinks that it merits a trial.—(*Archives of Otolaryngology*, July, 1891.)

The Effects of Influenza upon the Middle Ear.—Sir William Dalby, in a clinical note published in the *Lancet* of 20th February, stated that a person with healthy ears has little to dread from influenza so far as the mucous membrane of the middle ear is concerned, but that it may become a serious trouble to one whose ears have formerly been the seat of inflammation. A correspondence on the subject will be found in subsequent numbers of the *Lancet*, in which the various writers agreed with the latter portion of Sir William's statement, but took exception to the first part. Each, from his experience of cases of middle ear inflammation following influenza in those who previously had perfectly healthy ears, took exception to the conclusion that "those with healthy ears had little to dread."

A Rule and Scale for Use in Trephining the Skull in Cases of Aural Disease.—These, as recommended by Dr. Macnaughton Jones, are described and figured in the *Lancet* of 5th March. The rule is 4 inches in length, and is marked in fractions of an inch. The thin ivory scale has on one side the guides to trephining the skull according to Dr. Birmingham, and on the reverse are the explanations of the markings. It is made by Messrs. Mayer & Meltzer.

Books, Pamphlets, &c., Received.

- Elements of Materia Medica and Therapeutics, by C. E. Armand Semple, B.A., M.B. Cantab. With 440 Illustrations. London: Longmans, Green & Co. 1892.
- The Nursing Directory for 1892, including the Directory for London, the Provinces, Scotland, Ireland, and Abroad. First Annual Issue. London: The Record Press, Limited.
- Saunders' Question Compend. No. 20: Essentials of Bacteriology for the Use of Students and Practitioners, by M. V. Ball, M.D. With 77 Illustrations. Philadelphia: W. B. Saunders. 1891.
- Saunders' Question Compend. No. 22: Essentials of Physics in the form of Questions and Answers for Students of Medicine, by Fred. J. Brockway, M.D. With 155 Illustrations. Philadelphia: W. B. Saunders. 1892.
- Saunders' Question Compend. No. 23: Essentials of Electricity, by D. D. Stewart, M.D., and E. S. Lawrance, M.D. With 65 Illustrations. Philadelphia: W. B. Saunders. 1892.
- A Junior Course of Practical Zoology, by A. Milnes Marshall, M.D., D.Sc., F.R.S., assisted by C. Herbert Hurst, Ph.D. Third Edition. London: Smith, Elder & Co. 1892.
- Students' Guide Series. The Diseases of the Nervous System, by J. A. Ormerod, M.A., M.D. Oxon. London: J. & A. Churchill. 1892.
- Materia Medica, Pharmacy, Pharmacology, and Therapeutics, by W. Hale White, M.D. London: J. & A. Churchill. 1892.
- International Clinics, a Quarterly of Clinical Lectures. Vols. III and IV. Edinburgh and London: Young J. Pentland. 1892.
- Clinique des Maladies du Système Nerveux. M. le Prof. Charcot. Leçons etc. publiés sous la direction de Georges Guinon. Tome I. Paris: Aux Bureaux du Progrès Médical. 1892.
- Recherches Cliniques et Therapeutiques sur l'Épilepsie, l'Hystéria et l'Idiotie par Bourneville, Médecin de Bicêtre. Vol. XI. Paris: Aux Bureaux du Progrès Médical. 1891.
- Epidemics, Plagues, and Fevers: Their Causes and Prevention, by the Hon. Rollo Russell. London: Edward Stanford. 1892.
- Dermic Memoranda, by Wm. Gemmell, M.B. Glasgow: A. Stenhouse. 1892.
- Differentiation in Rheumatic Diseases (so-called), by Hugh Lane, L.R.C.P. Second Edition. London: J. & A. Churchill. 1892.

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ORIGINAL ARTICLES.

THE SIGNIFICANCE OF ACIDITY IN RELATION
TO THE CAUSATION AND CURE OF IRRITATIVE
DYSPEPSIA.

By ALEXANDER MACINTYRE, M.D., INNELLAN.

FOR the practical purposes of this paper, the form of dyspepsia designated irritative or functional will be treated as belonging to one or other of the following three classes:—

1. Those cases wherein the process of digestion is more or less habitually subject to the disturbance generated by the disordered physiological mechanism of the process itself.

2. Where the prominent causative source of disturbance is ingested, as where food and drink irritants have been partaken of.

3. Where there is, from a variety of more or less clearly defined and recognisable causes, defective nervous supervision, or absence of the reciprocal nervous harmony of healthy digestion.

It may fairly be questioned if, in the whole range of practical medicine, there is any subject where vitiation of the diagnosis and treatment by careless theorising and indiscriminate drugging is more frequent and irrational than in indigestion. The loosest and most fantastic notions regarding the whole subject abound in the lay mind, and from the emphasis with which certain lines of treatment have been

advocated by specialists of eminence, it is not to be wondered at that elements of confusion have crept into the professional mind as well. We habitually forget that the process of digestion reveals a greatly involved and complex mechanism, and that the supposed *action* of remedies, understood as direct curative agencies, is based upon the fallacy which confounds the mere introduction of them into the system with their scientific *reaction* with the living tissues. Take, for example, the symptom heartburn or cardialgia (*ardor ventriculi* of the older writers) the significance of which we hope to establish as important enough to entitle it to be accepted as giving us the reading of the digestive barometer in cases of ordinary functional dyspepsia. There is nothing apparently so natural as to fall into the fallacy of supposing that gastralgia, being dependent on excess of acid, must be relieved by direct antacid medicines which annul or abolish that excess. The purely chemical action here desiderated would in very many cases vitiate if not entirely frustrate successful treatment. For though it is true the transformation of albuminous substances into chyme and peptone can be successfully effected by hydrochloric acid, and pepsine and water in the chemical laboratory if the experiment is conducted at a proper and and stable temperature, that fact establishes no warranty for the method of treatment by direct antidotal means of an aberration in physiological mechanism occurring in the living animal organism.

Again, we suffer ourselves to yield too much to the therapeutical bias in our treatment of dyspeptic troubles. Cases, indeed, are known where certain more or less fanciful derangements of the secretions or movements of the stomach which could not be proved or observed, but which nevertheless were all the more elaborately and dogmatically enunciated, have been allowed to impose on the too facile therapeutical physician, who, after vainly ringing the changes on every chemical corrective and so-called physiological digestive, and finding his supposed cause untouched, was driven to seek, in a careful re-study of the natural process, and in the unprejudiced acceptance of the established dicta of physiology, the only rational foundations of successful treatment.

The healthy natural function is the only standard by which to judge correctly of physiological aberration. In order to understand the various aberrations of digestion generically comprehended under functional dyspepsia, it is necessary to correctly appreciate the normal requirements and ordinary conditions of the healthy natural function. Into the minute

details of gastric digestion it is, of course, not our purpose here to enter; but it is necessary, for the scientific justification of the conclusions and suggestions for treatment which follow, that we should, however briefly, refer to the outstanding phenomena of the process.

In the ordinary course of healthy digestion, presuming that the food has been properly masticated and acted upon by the salivary juices, and penetrated by their ferment ptyalin, the analogue of diastase, the solvent of starch—for there is more than a mere admixture if we allow, what is indeed generally admitted, that besides an intimate commingling of a specifically alkaline, if also greatly diluted chemical solution—there is the additional lubricating agency of the labial, buccal, and lingual mucus, and the more viscid mucoid secretion of the submaxillary, palatine, and tonsillitic glands. The act of deglutition or swallowing projects the food into the œsophagus, along which it is carried by a modified peristaltic action into the stomach—an action, however, which is manœuvred by a very delicate mechanism, especially at the entrance to the stomach, where the nerves of the sympathetic ganglia situated there, as has been demonstrated by Professor Kronecker and Dr. Openchowski, possess inhibitory, reflex, and automatic functions. Besides being plentifully supplied throughout by nerves, the gullet at its cardiac end possesses glands whose secretion is always alkaline. Whatever be the total output of alkaline secretion from these glands, the average secretion per day of saliva alone is roughly estimated at between 3 and 4 pints. The character of the secretion of these glands, if only as furnishing an odd contrast, has a noteworthy interest. As Beale says—"Strange to say, two fluids of opposite qualities are secreted by glands in different parts of the stomach."

The food then, thus prepared, enters the stomach, where it is subjected to the action of the gastric juice, the supply of this solvent being exactly proportional to the demand imposed on its production by the character of the food eaten. It undoubtedly is a striking fact, first elucidated by the researches of Dr. Wright, that the acidity of the gastric juice bears a directly proportional relationship to the alkalinity of the salivary secretion. What precisely determines that relationship is obscure, and the question has baffled the most astute observers. But we may, in adjudging the determining quantity responsible for the degree of alkalinity of the saliva, fairly and reasonably infer that the degree of palatability of the diet consumed is a positive factor in the occurrence of the

phenomenon in question. We also know that the sensory nerves of the tongue and palate, derived as they are from the glosso-pharyngeal, itself a purely sensory nerve (though as a centripetal nerve motor suggestions are conveyed by it to the medulla), and closely connected by its origin and contiguity with the pneumogastric, and, by anastomosis, with filaments of the sympathetic, and at the anterior and lateral parts of the tongue with the lingual or gustatory branch of the inferior maxillary division of the fifth cranial nerve, exercise selective as well as supervisory and prohibitive powers in regard to the aliments partaken of. This implies far more than the mere sense of taste. And if the food received is *recherché* and palatable, and appeases not only the sense of hunger, but the selective sense resident in the glosso-pharyngeal nerve system, by which its suitability, variety, and toothsome-ness is ensured, then we know from the experiments of Dr. Beaumont that the salivary secretion is generous and sufficient in alkalinity; and, wayleaved in this way, the food is quickly digested by the stomach. Concurrently we have the gastric excitement from the presence of food in the stomach operating as a cause of further reflex salivary secretion; and, remembering the observations of Beaumont in the case of the man Alexis St. Martin, and those also of Blondlot as to the quantity of gastric juice secreted in the presence of certain aliments, and also the fact we started with, that the more acid the gastric the more alkaline the salivary secretion, it is not begging the question to base upon these facts the plea in explanation of the phenomenon that the salivary glands, interpreting, as it were, the demands of the aliments ingested, supply the necessary, but only that amount of alkalinity which meets both the character of the food partaken of, and the gastric excitement incident to its reception.

But whatever the precise nature of the relationship may be which determines the acidity of the gastric and the alkalinity of the salivary juice as a substantive fact, we must at least properly and rationally admit that relationship as aiding the diagnosis, and indicating the line of treatment in functional dyspepsia.

There is, roughly, four or five times more gastric juice secreted than saliva in the twenty-four hours, but there is no absolute limit for gauging the amount of either. We know that the secretion of gastric juice comes briskly when the food is chewed and swallowed in a state of preparedness—*very scantily* if the same food is merely *introduced* into the stomach, a fact which further attests the reciprocity of the

two secretions. Again, in the case of Dr. Gairdner, where the pharynx was divided, the introduction of food into the stomach was immediately followed by a flow of some ounces of saliva.

The empty stomach is moistened by a slightly alkaline mucus. Excess of saliva, secreted by whatever means into an empty stomach, produces no effect on the gastric mucous membrane, but excess of water, for instance, would cause heartburn by inducing a state of hyperæmia of the mucous membrane and a flow of gastric juice.

The cause of the alkalinity of the empty stomach, according to Dr. Parry, depends on the alkaline quality of the blood—a condition which further subserves the important purpose of preserving the stomach itself from possible injury by its own secretion. But, as already noted, the secretion of the cesophageal glands is alkaline, and to this secretion is mainly due the alkaline state of the empty stomach. We know that this secretion can be excited to excess, and, when so excited, may account for certain obscure cases of pyrosis, as is demonstrated by Chambers in his *Digestion and its Derangements*, p. 337.

It may be proper to note here, in passing from this part of the subject, that the anatomical cause of gastralgia, as has been indicated by Beale, resides in the nerve centre or group of ganglia by which nerve action is regulated in the mucous membrane of the stomach, and the changes resulting in the secretion of gastric juice governed. Nerve fibres from the sympathetic are distributed throughout the glandular cells and submucous tissue. It is at the peripheral distribution of the sympathetic nerve fibres, so placed that gastralgic pain is developed. When acidity abounds there is associated with the occurrence of the resulting heartburn a condition of hyperæmia in the mucous membrane. Unless in old standing cases, it is of a transient and potential character generally. But in all cases the danger undoubtedly exists of this passive and potential condition merging into an active and abiding one. It is important that this should be quite understood, as indicating what pathological results may eventuate from neglected cases of functional dyspepsia, that if any given area of the gastric surface is habitually congested, necrosis may occur, and a breach of tissue or ulcer result. The distension of the vessels over sensitive nerve fibres creates the concomitant pain in cases of both actual and incipient ulceration.

PROGRESS OF HEALTHY DIGESTION.

The food, then, having entered the stomach, a beginning is immediately made both as regards digestion and assimilation. The fluid and absorbable elements begin to disappear, being uptaken by the absorbent vessels, which quickly empty them into the current of the general circulation. The gastric juice, the accredited essentials of which are hydrochloric acid secreted from the glandular cells and pepsine, comes into rapid contact with the solid food particles, over which it is diffused, and disintegration and chymification of the mass proceeds apace, greatly aided by the intimate solvent admixture ensured by the muscular movements of the stomach.

In a period of time varying from one to three or four hours' duration, according to the constitution and character of the food, the whole meal is disposed of, and the stomach should then, under normal circumstances, be found empty, and in a state of rest. There should be the alkaline mucus lubricating its internal walls, but there should be no acidity and no heartburn.

CAUSES OF ACIDITY AND POINTS BEARING ON ITS
CLINICAL SIGNIFICANCE.

The progress of digestion in irritative dyspepsia furnishes a complete contrast to the above. Even allowing the absence of stormy incidents during the progress of digestion, such as pyrosis, flatulent distension, sensations of fulness and great nervous lethargy or oppression, there remains behind all the heartburn, due to an excess of acid for which there is no use, though from some blunder or blundering referred either to the quality, quantity, or manner of digesting the food taken, a misconceived demand evoked the supply. Here is the *fons et origo mali*. By this disturbance, provoked and dominated by the presence of irritants, intrinsic or extrinsic or both, an effective derangement results, directly ending in pain, heartburn, flatulence, nausea, palpitation, &c., and indirectly in the temporary impairment of the physical and mental well-being of the individual.

If the morbid bias is only occasional, the difficulty will admit of easy adjustment, and if the displacement of the physiological harmony of the digestive process is attested by only slight subjective manifestations, a wholesome hunger of twelve or eighteen hours' duration, and a dose or two of mild aperient medicine will probably end the trouble. Let,

however, the bias be ever so slight, if it is only persistent, and we have a habit contracted which becomes chronic, and which it will task the greatest perspicacity of the physician, and self-denial of the patient, to triumphantly surmount.

In this chronic perversion of the natural function consists, indeed, the whole idea of dyspepsia ($\Delta\upsilon\varsigma$ = difficulty + $\pi\acute{\epsilon}\pi\tau\omega$ = to digest).

Let a few undigested food particles which have resisted the solvent action of the gastric juice be operated upon by this excess, and acetous fermentation with the formation of acids and the production of gas will follow, creating flatus, eructations, and the much dreaded borborygmi. And such a condition, it is well known, may in certain neurotic and cardiac cases prove not only troublesome, but dangerous. Should, however, any considerable quantity of undigested food remain in the presence of such acidity, and we have nausea and vomiting resulting, and a condition of hyperæmia and irritability which we call acute gastric catarrh, and which may establish, even in comparatively recent cases of digestive aberration, a morbid bias lasting for life.

We are not concerned here to apportion the relative potency of the numberless agents which make for acid dyspepsia, as even a superficial consideration of them and their *modus operandi* in the illimitably varied operations which they reveal in individual cases would tax the dimensions of a treatise. What, so far, we have specialised as common to all, and operative in all cases of irritative dyspepsia, is the element of over acidity more or less clearly and subjectively defined.

Of course the value of this symptom in regard to treatment will manifestly depend upon the precise significance we ascribe to it in its etiological connection. It is clearly a perverted physiological rather than a morbid symptom, and the corroboration of this view will emerge from our digest of the ordinary operation of the salivary and gastric juices given above, the circumstances which determine their quantity during the period of digestion, the incidence of their over action, the powers that regulate their secretion and neutralise their excess, and the means taken (1) by unaided nature and (2) by medical skill to restore the balance of the perturbed function in general, and to relieve the heartburn in particular. With regard to the particular acid or acids which set up heartburn, some very interesting investigations have been quite recently made. Dr. Hamilton, in his valuable contribution on "The Pathology of Acid Gastric Dyspepsia," lays emphasis on the fact that in the digestion of an ordinary mixed meal two acids make

their appearance; first, lactic, and second, hydrochloric acid. The acidity may be due to one or the other, according to the stage of digestion. But he lays stress on this important point, that "the acid which gives acid dyspepsia its peculiar character is lactic acid." Dr. Christopher further describes the conversion of the carbohydrates into glucoses in normal digestion, and that interesting transmutation of glucose into lactic acid. Given abnormal fermentation, as where the alkalinity of the saliva is neutralised too early in the process, or where the saliva has been from the beginning defective in quantity or quality, and glucose may be converted into lactic acid.

According to the results of some direct investigations made by Drs. Cahn and Von Mering a few years ago, it was found, among other things, that—(1) hydrochloric acid is found in the healthy stomach one half hour after food is taken; (2) under a diet exclusively of meat, hydrochloric acid alone is found; (3) under a mixed diet the stomach, whether healthy or diseased, contains hydrochloric acid, lactic acid, and volatile acids, in quantities varying according to the length of time the food has remained in the stomach.

It is probable, however, that besides hydrochloric acid, phosphoric and lactic acids are secreted by the stomach, and as the result of fermentation or the mal-digestion of mixed diets, butyric and formic acids, and valerianic and acetic acids, and a number of other organic acids are formed.

These changes are the result of mere functional aberration.

The practical difficulty of allaying acidity formed of these organic acids by the administration of alkalies which neutralise them, but which may also neutralise the acidity of the gastric juice, accentuates the importance, as it greatly enhances the interest, of carefully studying the conditions which obtain in what I may call the pre-assimilative stage of gastric digestion. That study is essential if we aim, as we ought to do, in treating our cases of irritative dyspepsia at scientifically eliminating the causative elements operative in the production of the malady.

The deranged physiological condition, of which gastralgia or heartburn is merely the expression, may be the resultant of very many separate or combined causes, but whatever aggravates or leads up to the difficulty, whether the evil be in the irritant qualities of the aliments ingested, in their over dilution, in the scantiness of the saliva, or in the unpreparedness on the part of the stomach to receive and digest them, or in the hurried, inco-ordinate, and distracted manner

in which they are partaken of, the difficulty itself is an initial perversion of the natural relationship of the salivary and gastric secretions.

TREATMENT.

The theory advanced above as to the incidence of acidity and gastralgia has the advantage of the support accorded by a critical survey of the natural *modus operandi* adopted to overcome it. The very hyperæmia, which, as we have seen, is the pathological incitement to the heartburn, acts as a sialagogue, and excites by reflex means a copious flow of the salivary secretion. In some mild cases, where the remorse of the guilty stomach is a virgin revelation, this agency alone probably suffices to allay the disturbance and adjust the difficulty. The munching of stale dry bread is often popularly prescribed to the cardialgic sufferer by his lay friend as a "cure" for the symptom, and doubtless often succeeds where all that is wanted is a little more of the alkaline saliva. The practice of sucking saltpetre balls for slight digestive troubles is of old standing, and its virtues approved by ancient tradition. The love for horse radish, celery, cresses, &c., among some dyspeptics amounts almost to a mania. Pellitory root, and ginger and liquorice, are other well known popular sialagogues. The untutored lay mind, generation after generation, has clung to those simple but effective palliatives, and the habit has been sound and intelligible.

In accordance with the foregoing, it is therefore contended that the sialagogue treatment of acid dyspepsia, as distinguished from the purely chemical and antacid treatment, is the only rational and scientific one, and I admire the courage of the famous Dr. Keith, approvingly referred to in the work on *Insomnia and its Therapeutics*, by my distinguished friend, Dr. A. W. Macfarlane of London, in boldly advising his patients who are prone to this *bêtise* and to insomnia to take freely of Spanish juice, the virtues of which are cheaply, though a trifle inelegantly, conveyed in the homely pontefract. To effectually deal with the dyspepsia, it is necessary first to deal with the heartburn, and a correct appreciation of the factors accountable for the latter will speedily determine the removal of the *raison d'être* of the former.

Sir William Roberts, a physician of the very highest authority, has had prepared for him a lozenge consisting of $3\frac{1}{2}$ grs. of chalk, $2\frac{1}{2}$ grs. of carbonate of magnesia, with 1 gr.

of sodium chloride added, which addition, he says, sharpens its flavour and thus promotes the flow of saliva. This is the direct antacid and sialagogue treatment combined, and which of the two systems he deems most potent curatively may be inferred from the following data:—Sir William Roberts's lozenge must not be gulped, "nor roughly chewed and swallowed." It must be "deliberately sucked" in order to catch the "concurrent flow of saliva which," as he says, "is distinctly helpful to dyspeptics." He is disposed to regard the Vichy lozenges as the ideal antidyspeptic ones, and this is what he says of them:—"These lozenges have a comparatively feeble saturating power, but owing to their full sapid qualities, they provoke an abundant flow of alkaline saliva, and this renders them effective for the relief of gastric acidity" (Sir William Roberts's Address at British Medical Association Meeting, 1889).

The alkaline treatment of acid dyspepsia is founded on a fallacy. The findings of Bernard and Brunton, as bearing on this subject, that "the action of acids is to retard, of alkalies to promote digestion," concern physiological rather than clinical experience, and limit themselves in application to the class of cases where no abnormality exists. We do know experimentally, and as a matter of experience, that acids check acids, but increase alkaline secretions, and that dilute alkalies stimulate acid secretions. One writer, moreover, claims for acids the power of exciting a reserve corrective force, in that "acids before meals cure acid dyspepsia by diverting the osmosis stomachward of the acid-forming juices."

Be that as it may, the exhibition of alkaline remedies as a matter of routine for acid dyspepsia is irrational and unscientific, and would tend to perpetuate the very condition they were given to correct. Tanner, in his *Practice of Medicine*, vol. ii, p. 107, says on this point:—"Alkalies are not to be persistently given, however, for there is a greater secretion of gastric acid than is proper, since they will only tend to keep up the mischief by stimulating the mucous membrane to still greater exertions, so that there will remain a surplus of free acid over the amount neutralised."

In certain cases alkalies act most beneficially. In cases, for example, where flatulence exists in excess by decomposition of undigested particles, the use of an alkali shortly before the meals are taken has, by exciting an excess of acid to exert an energetic solvent action on the food, proved exceedingly effective. But, in dealing with the treatment of this too common malady, of course each individual case has to be

considered on its special and separate merits, and peculiarities of gastric temperament accurately adjudged. But, in a general way, the iodide of potassium, with the liquid extract of liquorice or the compound spirit of horse radish, taken before meals, may be depended on to avert acid dyspepsia in persons of a constitutional diathesis prone to it, though the diathesis is not manifested in an overt form in the dyspeptic trouble. I have been led to try cod liver oil in certain cases, and with excellent effect. In the dyspepsia of young tea-bibbers and immoderate smokers, I have had the Morrhuol Capsules manufactured by the Messrs. Chapateant of Paris given, with not only great relief to the dyspepsia, but with a resulting strong aversion to the repetition of the indulgence. The various preparations of maltine and malted barley, being rich in diastase, are all valuable.

It is no doubt true that the exhibition of small doses of a mercurial preparation, given, as it were, under the eye of the physician and carefully safeguarded, has proved frequently beneficial. And this by its stimulating glandular activity, and by its alterative therapeutic effects and "powerful antiseptic action in digestive catarrh" (*Zeitschrift f. Physiol. Chem.*, vi), and not by its stimulating osmosis, as has been recently advanced in a philosophical study of "The Inductive Method as applied to the Subject of Disease, with Especial Reference to Dyspepsia," by Dr. W. W. Murray, of Newcastle. And in a certain class of cases occurring among the immoderate tea-drinkers, and wine-bibbers, and smoking classes of society, where acidity and flatulence exist, nothing suits better for a preliminary sedative and corrective effect than salicin and calomel. Carboic acid is a potent corrective for acidity and fermentation. The bicarbonate, or sulpho-carbolate of soda, the soda-mint tabloid of Messrs. Burroughs, Wellcome & Co., liquor potassæ and saltpetre, or salvolatile and ginger, are all admissible, and are all more or less efficacious correctives for present dyspeptic distress.

But whether by alterations in diet, by the restriction of fluids, by the total suppression of the use of irritant alcoholic liquors, or by the curtailment or abandonment of those baneful and pernicious habits—smoking to excess, "bolting" the food, and "snacking" between meals—or by judicious and well directed therapeutic treatment, the cause is mitigated, let us, in treating irritative dyspepsia, keep steadily in view the first dominating symptom of the aberration, the disturbance of the physiological mechanism indicated by its presence, and its significance as a generic cause of all the subsequent trouble;

and also, that the permanent restoration of the stability and harmony of the digestive function will depend on the increased salivary activity we can therapeutically or otherwise excite, and on the reduction or exclusion of the sources of irritation which disturb or derange it. And, finally, it appears to me that the husbanding of the saliva should be made to establish itself as a new axiom of practice, both in health and disease: in health, for it ensures to us the wholesomeness of the *prima via*; in disease, because it is the sheet anchor of our hopes. Not beef-tea, nor any solution of beef, can long sustain human life. They are non-albuminous, and would starve dying patients. In the words of the late lamented Dr. J. Milner Fothergill, "insoluble starch is made into grape sugar by saliva," "and grape sugar is *par excellence* the fuel food of the body."

NOTE ON THE INFLUENCE OF REST IN THE
TREATMENT OF DISEASES OF WOMEN.*

By SAMUEL SLOAN, M.D.

ALMOST the last word on the subject of rest for diseased or injured organs has been said by John Hilton. I have nothing to say on the subject from his point of view, except to remind you that the pelvic organs, no less than other portions of the organism, are relieved of venous congestion and of pain by what to these parts is rest. My remarks will apply wholly to the effects of rest in the horizontal position, and in bed, on the nervo-muscular system of women. It is obvious that men and women, whilst alike deriving benefit from rest to a part affected, differ in this that, whereas in the case of the former, though the whole system suffers in sympathy with the affected portion, it does so always, and only in the same proportion; in the latter, however, especially where any part of the sexual organs suffers, the implication of the whole exceeds in duration and in severity the local morbid action. This may arise in part from the more artificial life which woman leads, or it may be natural for her nervo-muscular system to bear a continuous strain, mental or physical, as she has often need to bear, with more difficulty than is the case with man; though, perhaps more than any other single cause is the intimate connection existing between her sexual apparatus

* Read before the Obstetrical Section of the Glasgow Medico-Chirurgical Society, 5th February, 1892.

and her whole being. Thus it comes about that if any part of the former suffers, the effect on the latter is greater than when any other part is alone affected. Her organism is in more acute sympathy with her sexual apparatus than is man's. It is internal, man's is external. This is why we have so-called hysteria and so-called neurasthenia in woman only. The cause of the constitutional disturbance may have gone; the effect remains. The emotional cords are normally tense in the whole sex, and where in the individual they happen to be abnormally so, they may snap, and repair may become impossible, at least so far as drugs and ordinary treatment can bring about repair. This is the condition out of which what has come to be called the Weir-Mitchell treatment has extricated many a poor victim. I have so treated several women, and with results quite equal to what I expected, and fully justifying the hopes held out by its advocates. This is not, however, the aspect of the question which I wish to dwell on to-night, though it may serve as a text; for it has had not a little to do with my practice in nearly every gynæcological case I have treated since I have had personal experience of it. Why, I argued, if the combination of rest, massage, isolation, and feeding, works such wonders, may not such a combination, in a modified degree, serve to prevent neurasthenia, and to fortify the system during minor pelvic affections, to such an extent as to turn the balance the other way; the whole organism then being enabled to give sympathetic help to the weak or inflamed part instead of being dragged down by it. Nor have my expectations been disappointed; for many a woman, having faithfully carried out such treatment, has been ready to applaud at last what she resented at first.

But you will say to me, What is this but the old maxim, "Keep up the constitution," which we all aim at doing, as by the use of tonics—stomachic and general—rest, exercise, stimulants, &c. ? In answer, I shall say, if there is no need to emphasise what I have been saying, then why do our patients complain so much of nervousness, of weakness, and of slow recoveries, and why have so many women, able to command this treatment, drifted into chronic invalidism without there being any appreciable disease to account for it? Largely, in my opinion, because we and our patients have not yet fully learnt how to secure the most benefit out of "tired Nature's sweet restorer"—rest. We do know the value in some cases of absolute and continuous rest, and we know the value in other cases of exercise; but what we fail to recognise is that

whilst one woman may require rest and another may require exercise, in very many cases these two are required in combination; not the one or the other, but both combined in carefully regulated quantities. "Women do work better, and with much greater safety to health, when their work is frequently intermitted."*

Though rest is prescribed in nearly every gynæcological case, either primarily on the suggestion of the medical adviser, or in answer to a question by his patient, I do not think from experience that anything other than rest in the surgical view is considered as a rule—together with general rest in the sense of the avoidance of fatigue. Rest is found to diminish an excessive flow, to relieve a pelvic pain, or to diminish the inconvenience of a prolapse, and it is for one or more of these objects that it is prescribed.

Women, for whom the treatment which essentially consists of rest is mostly indicated, may be divided into two classes, according to the effects produced on them by this advice. One class believe it to be so necessary, or find it so easy and so interesting, that they are glad to have an excuse for total confinement to bed. This class is an illustration of the abuse of rest. The other class either cannot get the rest or are too irritable or morbidly conscientious to resort to it; and so it is either not begun or it is soon abandoned. This class is an illustration of the neglect of rest. The former steadily drift into chronic invalidism, and soon are unable to do anything else but rest. The latter fight nobly on the border land of invalidism, and having more than average go, they yield only when some slight cause has driven them over this border line, and compelled them to take to bed till they are enabled again to take up the old position just on the safe side of this border line; when, having no reserve of strength, they are soon driven back. This weary struggle many a woman keeps up during most of her married life, often rendered a short one by some slight extra strain thrown on it. The problem of the best use of rest in these two classes of cases is much too difficult for the woman herself or her husband to solve, even if their inclinations be left out of calculation. And yet how often is this question left almost entirely to their judgment. The medical adviser may insist on her doing less work; but in this he is apt to be guided by the patient's feelings, and by the opinions of those around her, which opinions are invariably unreliable. He would never permit himself to be influenced by his patient or her friends as to the dose of a powerful

* *The Question of Rest for Women* (Jacobi), p. 232.

drug to be administered, or as to the local treatment to be adopted. Yet he is willing almost entirely to be guided by them in the questions of rest and exercise. A careful regulation of these, however, is, I believe, of as great, if not of more importance than is that of almost any other therapeutic agent. Dr. Mitchell puts this truth very forcibly. "Rest and unrest," he says, "have had their days and fashions in medicine; but be you sure that he who can tell when the one is wanted, and when the other, is a master in the ways of healing."* I suspect that by the word "when" in this sentence he means *in what cases*; but I would go further, and say, instead of when, *at what time in each individual case*, and this is mainly what I am trying to impress upon you to-night.

But what really is rest in the fullest meaning of the term? Certainly it is not simply doing nothing; for a woman may spend a restless life doing nothing. Rest, in the sense in which I am using the term, must be absolute, and must follow work. Then it will be sweet and profitable; and the work—for in these cases work or other form of active exercise takes the place of massage, which as a passive exercise is resorted to in confirmed cases—work, I say, must follow this absolute rest; then it will be done with satisfaction, and without fatigue. Appetite will follow, "as the night the day," in a way that no tonic can force, and no stimulant coax. The temporary isolation in bed will give the needed mental repose, which will make the little worries of the day more easily borne. I do not consider the couch a suitable place for this absolute rest. Such rest is too uncertain in its duration, and too liable to be interrupted. There is also the restraint of the dress to make it incomplete. It is, indeed, more of the nature of surgical rest, and valuable to this extent, though to this extent only. I have said that exercise short of fatigue will increase appetite, but I trust even more in these cases, if the exhaustion be at all marked, to the effect of rest on the appetite. Many a woman, who takes almost no breakfast half an hour after rising in the morning, will enjoy this meal if it is taken to her in bed. Some exercise in the forenoon will give her an appetite for lunch or dinner, and an hour or two's rest after this will aid its digestion, leaving her fresh and bright instead of wearied and irritable when her husband comes home in the evening. It is only, however, by firmness on the part of the physician that this sort of thing will be begun and faithfully carried out. I find it comparatively easy to succeed if exact details as to times in bed, meals, and

* *American Clinical Lectures*, 1875, p. 85.

work or pleasurable exercise are prescribed. This requires some consideration, however—sometimes very careful consideration, but it is trouble well repaid. The exact amount of strength left to the patient has to be gauged, the probable effect on the local condition of rest and movement; the domestic arrangements have also to be considered, so that the rest is taken at the most convenient times. If I have been successful in estimating the case rightly, and my orders are conscientiously carried out, I care less as to any other orders, useful though they be, which I may have found it necessary to give. I am sometimes told, however, that the amount of indoor work and of outdoor exercise I have prescribed have proved to be more than the patient had strength for, and that fatigue and loss of appetite have resulted. I am sure then to find that one half only of the instructions has been followed. There was found to be no sufficient opportunity for the rest I had ordered, and thus there was no strength for the exercise. I am not afraid of fatigue resulting if the due amount of rest has been taken. I do not then require to enjoin caution to avoid fatigue. I rather discourage any thought of fatigue, and advise little attention to be paid to any pain or discomfort that may follow; just as we have often to insist on our patient eating in spite of the after discomfort, rather than by too restricted a diet diminish the little reserve power already possessed by the system. I think, in these cases, it should be the aim of the physician to dispel the constant fear of doing too much, or of running any risk that haunts many women. "Treading softly" all her life is not conducive to vigour of body or mind in a woman. Freedom from fear involves some risk; but the risk is worth running. Neurasthenics are not, as a rule, recruited from the ranks of the brave, but of the fearful. I sometimes tell such women that what they will die from is not disease, but fear. These cases require patience and tact, but the result is worth the trouble. Of course, I must guard myself against your criticism that working, walking, riding, &c., are in many pelvic cases most pernicious. I admit this, but in a large majority of minor pelvic ailments the treatment I have advocated is, I am sure, the right one, not alone in cases where, without it, the woman would drift into one of the classes I have mentioned, but also in all cases where, with a mild pelvic complaint, the nervo-muscular system has become deteriorated. Patients who get cured without a carefully considered prescription as to rest and exercise will, I feel assured, be more rapidly and more pleasantly cured by

attention to these details. It will not be sufficient that we assure our patients that the local condition is improving; our patients will then be able to tell us how conscious they are of returning strength.

I shall close this, I fear somewhat crude, "note" with a statement of what I would consider an average prescription in the cases we are considering, to be modified as the progress of the patient may indicate. Take breakfast in bed, say at 8 or 9, rise at 9 or 10, take a light meal at 11, take then a walk of about two hours, dine at 2, go to bed after dinner till 5, rise then to a light meal, take another at 9, and go to bed at 10. I generally advise as little standing or walking as possible. The time not spent in active exercise should be spent on the couch, but, as a rule, I place no restrictions on the amount of exercise to be taken, leaving this largely to be determined by the power of endurance of the woman.

SIX CASES OF ACCIDENTAL HÆMORRHAGE.*

By ROBERT JARDINE, M.D., M.R.C.S.,
Out-door Physician to the West End Branch of the Glasgow
Maternity Hospital.

THE old adage that "it never rains but it pours" is frequently exemplified in medical practice. The truth of this was brought home to me very forcibly during one week in June last, when I was called upon to treat three cases of accidental hæmorrhage in six days. I purpose giving a short account of these, together with three others which I have had in private and hospital work during the year.

CASE I.—Multipara, third pregnancy, advanced eight months. Her two previous confinements had been normal. She was a strong, healthy woman. In the morning she felt a few irregular pains, but towards the afternoon they became severer. I was not at home when sent for, so Dr. M'Cartney kindly saw her. The uterus was not distended then; there was no external bleeding, and the os was undilated. She was complaining of the pain a good deal, and was inclined to be sick. He gave her some liq. opii sedativus, which checked the sickness.

When I saw her in the evening she was pale, but she was

* Read before the Obstetrical Section of the Glasgow Medico-Chirurgical Society, 5th February, 1892.

naturally so; her pulse was 90 and fairly strong, and improved in strength in a short time. The uterus was somewhat globular in form, but not markedly distended. She complained of the pain being dull, heavy, and continuous in character. The os would admit one finger; the head presented L. O. A. There was a copious serous discharge, but very little bleeding. I swept my finger round inside the lower uterine segment as high up as I could reach.

In a short time I found the cervix dilated to the size of a florin. Dr. McCarney kindly came to assist me with the delivery. He agreed with my diagnosis of concealed hæmorrhage. He gave her a little chloroform, and I quickly dilated and applied forceps. The placenta came away with the child. I at once introduced my hand, cleared a large quantity of clot from the uterus, and kneaded it through the abdominal wall. The hot douche stopped the bleeding, and caused pretty firm contraction. The pulse was scarcely perceptible at the wrist. Stimulants were at once resorted to by the mouth and hypodermically, and hot applications made to the surface of the body. She rallied slightly, but only lived an hour. The placenta had been attached to the anterior middle zone of the uterus. I could get no history of shock or injury to account for its separation.

CASE II.—Primipara, about 30 years of age, eight months pregnant. Had enjoyed very good health during the pregnancy. Her husband, who is an engineer, had returned from sea on the day previous, and, contrary to his wishes, she insisted on washing his clothes. About 6 P.M., when coming up stairs, she began to feel pain. I saw her at seven, and found her complaining of a continuous dull pain; the head was presenting L. O. A.; os just beginning to dilate; uterus was not over-distended. There was the usual slight discharge. Pulse was normal. At 9 P.M. she was still complaining, and was inclined to be hysterical. Pulse still good. At 10.30 there was a slight discharge of blood between the pains, and the cervix was quite soft and dilatable. Dr. Turner kindly came and administered chloroform. I easily dilated with my hand, and delivered with forceps. The placenta was almost immediately expelled with several large clots. A hot douche caused firm contractions. Pulse was now 100, and very weak. I at once gave whisky by the mouth, and a hypodermic of ergotin. She was sick several times, and began to grow restless. Dr. Turner was of opinion that the sickness was due to the chloroform, and that she would soon

rally. I gave her injections of ether hypodermically, but she gradually sank, and died two hours after delivery. The bleeding was not profuse, and I have certainly seen quite as much lost in a normal labour.

CASE III.—Three days after this I was hurriedly summoned at 5.30 A.M. to a case by the nurse of the West-End Branch of the Maternity Hospital. The patient was a multipara, aged 28 years, eighth pregnancy, advanced eight months. I found a very large quantity of blood had been lost, and she was blanched, nearly pulseless, and complaining of dizziness, ringing in the ears, flashes of light, &c. The os was nearly fully dilated, membranes intact, and the breech presenting. She was so sensitive about the vagina that I was compelled to give her a little chloroform. On rupturing the membranes an unusually large quantity of clear liquor amnii came away. I seized a foot, and easily delivered the child, which gave a feeble gasp or two, but did not survive. The placenta was quickly expelled with several large clots. It had been implanted on the lower zone of the uterus, and about one-half had been separated before delivery. The uterus contracted well under manipulation and hot douche. Pulse was 100, and very feeble. As they had no spirits, I had to rely on milk as a stimulant. Her temperature and pulse kept high for several days, but she made a fairly good recovery under quinine and iron. In about a fortnight she was able to be up, and I believe got drunk. In this case we could get no history of injury or shock, but as both she and her husband were addicted to drink, it is quite likely she had been badly treated.

CASE IV.—In three days more I was again hurriedly sent for by the nurse for a similar case. Patient was a multipara, aged 32, eighth pregnancy, eight months advanced. She had been sitting on the stair in the forenoon, when a boy, carrying a pail of water above her, fell, and she “got a great start.” She had felt strong movements immediately before, but felt none subsequently. In about half an hour she experienced a sudden rush of blood from her, and fell fainting on the floor. When I reached her, bleeding had ceased. She was blanched-looking, but the pulse was 70 and fairly good. The uterus was not distended, and there was no foetal heart to be heard. The os would admit one finger. Head was presenting L. O. A. A student gave chloroform, and I dilated by means of Barnes’s bags, and turned. There was a large mass of clot in the uterus, which I turned out along with the placenta. The

placenta had been implanted on the posterior middle zone. A hot douche stopped all bleeding. She made a good recovery, getting iron and arsenic for the anæmia.

CASE V.—Multipara, aged 41, twelfth pregnancy, advanced seven months. Very severe hæmorrhage came on at 3 A.M., and when nurse saw her at noon she had lost a very large quantity of blood—so much, that it had soaked through a thick mattress on to the floor. Bleeding had ceased, and there were a few weak pains. I found her very weak and anæmic; pulse, 100. The uterus was not over-distended. The os would admit two fingers; head presenting L. O. A. I at once dilated with Barnes's bags, and ruptured the membranes, when strong pains came on, and the foetus was expelled in a few minutes. It had apparently been dead several days. A large amount of black clot was immediately expelled, followed by the placenta. The uterus contracted very firmly after the douching. The placenta was very pale in colour, and showed fatty degeneration very distinctly. She soon rallied, and made an excellent recovery. The cause in this case was a kicking administered by her loving husband.

CASE VI.—Multipara, aged 37, sixth pregnancy, advanced seven months. She had had an abortion in the early part of the year, and the year before a miscarriage at the seventh month, with considerable hæmorrhage. While on the street in the afternoon she was seized with a heavy fit of coughing, and a great gush of blood came from the vagina. The bleeding continued until she arrived home, and then ceased, but began again in the evening. Nurse saw her at 11 P.M., and found her bleeding still; the os was the size of a florin, the head presenting L. O. A. When I reached her, bleeding had ceased; pulse was soft and weak, about 80. There were no pains; os still the size of a florin. I gave her ergot, and the pains soon came on and expelled the child shortly afterwards. The placenta was partially adherent. It was markedly degenerated, especially about one-third of it which had been adherent. The child had evidently been dead a day or two, and showed signs of syphilis. The mother was markedly syphilitic. She made a good recovery.

The subject of accidental hæmorrhage is a very important one, and merits more attention than it usually receives from writers on obstetrics. The concealed variety is the most fatal form of hæmorrhage in childbirth. Upwards of 50 per cent

of the mothers are lost, while very few of the children are born alive.

In conclusion, I shall sum up the causes in these cases, and say a few words on diagnosis and treatment. In Case I there was no history of injury, shock, or excitement of any kind. The irregular contractions of the uterus caused the separation of the placenta, but why these came on I was unable to determine. In Case II excitement and over-exertion, especially the stretching to hang up clothes, were sufficient. This patient was a primipara, among whom it is very rare. In Case III direct violence was very probable; while in Case V it was undoubtedly the cause. In Case IV the sudden start caused by the boy spilling the pail of water brought it on; while in Case VI it was due to the severe strain of coughing. Severe anæmia, albuminuria, or any weakening disease is frequently a predisposing cause, but in none of the cases was any of these present, except in Case VI, where there was a marked syphilitic taint. Disease of the placenta is a very frequent predisposing cause. It was present to a marked degree in four out of the six, and probably in the other two also, as I, unfortunately, did not examine them.

The time of occurrence is usually during the later months of pregnancy, as is well shown by these cases—four of them being eight months and two, seven months advanced. The vast majority are multiparæ, but Case II was a primipara.

The diagnosis is comparatively easy when the blood appears externally. It may be confounded with placenta prævia, but they are easily distinguished, as the gush takes place during the pain in the latter; while in the former it is between the pains when the presenting part no longer acts as a plug to the cervical canal. A vaginal examination soon settles all doubt, as the placenta will be felt in placenta prævia. In the concealed form it is much more difficult. We find the patient markedly collapsed and suffering great distress. The collapse is more marked and prolonged than from ordinary syncope. The pain complained of is of a dull, heavy, continuous character, quite different from the ordinary pain of labour. It is due to the over-distension of the uterus. This is a most important symptom, and may be present even when the pulse does not indicate any serious loss of blood, as in Case II. The uterus is generally of a more globular form than usual, and in some cases an irregular bulging may be made out, indicating the position of a large clot. By the vagina nothing may be made out, except, perhaps, a copious serous discharge. If there is any bleeding it will make the diagnosis

simpler. Rupture of the uterus causes pretty much the same symptoms, but this nearly always occurs late in labour after the membranes have ruptured; while hæmorrhage comes on before labour sets in, or in its earliest stage. The rupture can usually be made out, and the foetus can be felt, partly or wholly, in the abdominal cavity. The blood very rarely finds its way into the amniotic cavity, but gradually works down between the decidua and membranes, or only the serous part may find its way out.

The indications for treatment are to get as firm contractions of the uterus as possible. In the external variety you may rupture the membranes, give ergot, or preferably, ergotin hypodermically, put on a firm binder, and allow nature to work. If there is great collapse, and the bleeding has ceased, it is advisable to do this, and get up the patient's strength by stimulants before delivering her, as the shock of immediate delivery might prove fatal. In the majority of cases, however, immediate delivery is called for. In the concealed variety, rupturing of the membranes is very apt to do more harm than good, as the escape of the amniotic fluid only makes room for a further outpouring of blood behind the membranes. The uterus is so inert from over-distension that it cannot contract sufficiently unless it is emptied and directly stimulated. Immediate delivery must be resorted to. If the os is dilated you may turn by either method, or use forceps, or in breech presentations seize a leg and deliver. If the os is undilated use Barnes's bags. The cervix is usually quite soft, so that very few minutes will suffice to dilate it. Firm pressure must be kept up during dilatation and delivery. In most cases the placenta follows the child immediately. The hand should at once be introduced into the uterus and the placenta, if not already away, and all clots must be turned out; while with the external hand the uterus is firmly kneaded through the abdominal wall. A very hot douche should be injected into the uterine cavity until firm contractions are set up. Ergotin hypodermically is also very useful. Stimulants should be given freely, if required, and warmth applied to the body.

I would have tried transfusion of a saline fluid in the two fatal cases if the means had been at hand. In hospitals it might easily be carried out, but in private practice one would rarely be able to do so from want of a proper syringe. I believe it would be of great use. A saline fluid would answer the purpose of keeping the heart going until a new supply of blood could be elaborated by the blood-forming glands.

A SUCCESSFUL CASE OF VAGINAL EXTIRPATION OF THE UTERUS, WITH A COMPARISON OF THE RELATIVE MERITS OF THE HIGH AND LOW OPERATIONS IN CASES OF CANCER OF THE CERVIX.*

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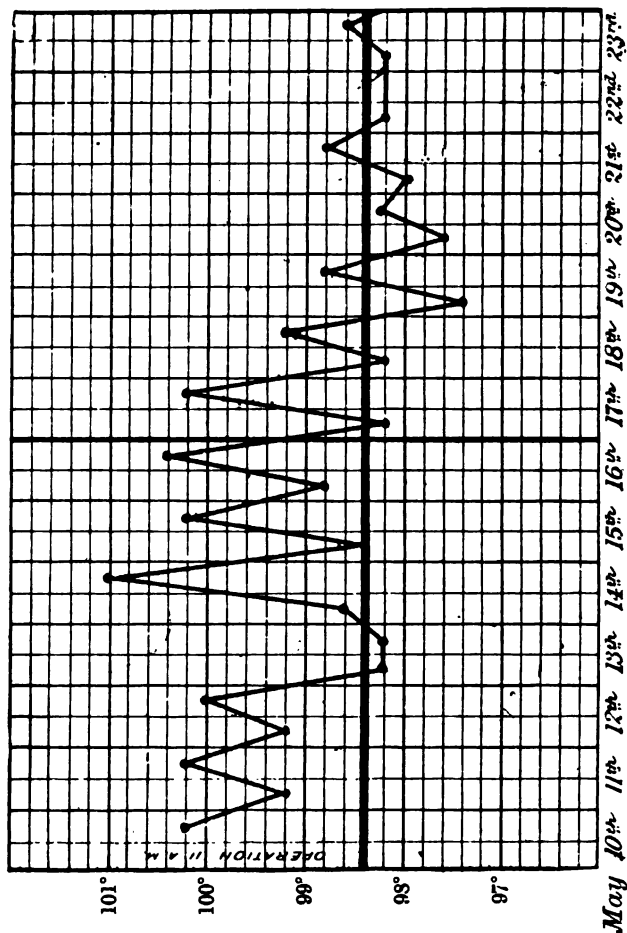
MRS. T., aged 44, widow, had four children and one abortion.

Previous History.—Had all her life been a healthy, hard working woman up till January, 1891, when she ruptured herself during a heavy lift, occasioning a right inguinal hernia. At the same time her menstruation ceased, and she began to complain of pain of a sharp shooting character, referred to the lumbar and ovarian regions, also of slight œdema of the feet, but sought no medical advice for her troubles. A nasty smelling discharge, slightly tinged with blood, now made its appearance. On 15th April I was hurriedly sent for, owing to her having an attack of severe hæmorrhage. On arrival I found her much exhausted, and, on making a vaginal examination, found a growth, hard and ragged to the touch, springing from the posterior lip of the cervix. The hæmorrhage having ceased, I ordered her removal to the Western Training Home for Nurses, into which she was admitted on 9th May. On further examination, I found the growth to be carcinoma, and as the uterus was moveable, and the disease localised to the cervix, I decided to extirpate the uterus. Accordingly, on the following day the operation was performed. Dr. Fullarton administered chloroform, and Dr. Edgar and Mr. Lindsay assisted me.

Operation.—The patient was placed in the lithotomy position, the bowels and bladder having been emptied, and the vagina douched. The cervix was grasped, and the uterus drawn downwards as far as possible by means of Martin's vulsellum, which was then carried forwards and upwards towards the pubis. The perineum was drawn backwards, and lateral retractors were also used. A transverse incision from right to left was now made through the junction of the vaginal mucous membrane with the posterior surface of the cervix, external to the disease, but as close as possible to the uterus. The forefinger of the left hand was now passed through the incision, into the pouch of Douglas, and the left

* Read before the Obstetrical Section of the Glasgow Medico-Chirurgical Society, 5th February, 1892.

broad ligament pressed down, and a portion secured by means of a ligature of plaited Chinese silk, No. 4, carried over the point of the finger, by means of a large sized curved needle. The portion ligatured was cut through with scissors, and another portion drawn down and secured in like manner,



working from below upwards in successive steps, ligaturing and then cutting. The right side was then treated in like manner. A sound was now passed into the uterus, and another into the bladder, and these organs were carefully separated from each other by means of a scalpel. A vulsellum

was now passed through the posterior incision, and the fundus of the uterus seized and retroverted, the remaining portion of the broad ligaments ligatured and cut, and the uterus separated. A transverse continuous suture was now applied to draw together the vault of the vagina. Iodoform was applied to the wound and the vagina plugged with iodoform gauze, and a $\frac{1}{2}$ grain morphia suppository introduced.

The operation lasted nearly two hours.

The after-treatment adopted was the same as in cases of laparotomy. The patient complained of some little pain in the abdomen for about three days, which was relieved by the passage of flatus. The patient was up for two hours on the twenty-fourth day, and left the home on the forty-second day, refusing a cab, and walking a distance of about a mile to her own home. Since that she has performed all her household work with ease, and feels in perfect bodily health.

I examined her carefully on Tuesday last, nine months after operation, and can find no evidence of a return of the disease.

Remarks.—The operation of vaginal extirpation of the uterus, in cases of malignant disease of the cervix *in suitable cases*, is, I consider, the proper operation to be performed, although Robert Barnes says, in his treatise on *Diseases of Woman*, published in 1873, page 844, "The question of total extirpation of the uterus is one that scarcely admits of discussion. The circumstances under which it can be seriously contemplated must be very rare. West gives a table of recorded cases of total extirpation of the uterus on account of cancerous disease. In *three* only did the patient survive the operation, and that only for a month; in twenty-two, death was the consequence."

Post, in the *American Journal of Obstetrics*, November, 1887, has collected over 700 cases, performed before the end of 1887, in which the total death-rate was 24 per cent.

Martin, of Berlin, gives his mortality as 16.6 per cent; Leopold as 6.2 per cent; and Scenger as 8.3 per cent. I consider if the mortality of this operation be even 10 per cent on the immediate result, and if we are able in even a few cases to give relief to the dreadful suffering of such cases, the operation ought to be performed. One has only to see a patient dying from advanced cancer of the uterus, suffering acute agony and discomfort, not only to herself, but to those around her, to feel thankful for any operation which might relieve her *even* for the time being.

Concerning the relative merits of the high and low opera-

tions, I apply to this operation the general rule of surgery, that in malignant disease it is better to remove the whole organ, *when that is possible*, than a portion of it. The low operation of supra-pubic amputation of the cervix is, I consider, of use in those cases where the uterus is fixed, so that it cannot be drawn downwards; but should not be performed in those cases where the disease is purely local, and the uterus freely movable.

The mortality for amputation of the cervix with the galvano-cautery is 7·75 per cent; with the knife, 9·09 per cent (Gusserow's), bringing the mortality up to or beyond that of the recent operations for total extirpation.

The point to be aimed at is *early* diagnosis, and then prompt removal of the entire organ. To the early discovery and diagnosis of the disease we must look to the general practitioner, to whose lot falls the first appeal of such cases.

Any suspicious cases should at once be carefully attended to, and, if necessary, a small portion of the affected tissue removed and subjected to careful microscopic examination.

THE RELATIONS OF OPHTHALMOLOGY TO MEDICINE AND SURGERY.

By FREELAND FERGUS, M.D.,

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(Continued from p. 361.)

THE changes which take place in Bright's disease are numerous and by no means constant. We had occasion to see a very large number of such cases in the wards of the Royal Infirmary, and in only two of them did we find no alteration whatsoever. These two cases, however, were, in their clinical aspects, undoubtedly cases of granular kidney with characteristic tube-casts in the urine; but, with these exceptions, all the cases we saw presented some change or other. We do not wish to be understood as saying that in the majority of cases these changes were so characteristic that we would have diagnosed the disease from them alone. On the contrary, in the larger proportion of them they were exceedingly slight, and would not have attracted attention had we not been aware that the patients suffered from Bright's disease.

At one time we hoped to be able to differentiate between functional albuminuria and that of kidney disease by

ophthalmoscopic examination, but in view of the fact that functional albuminuria is said to be accompanied²³ by some of the slighter changes, we are not sure that this would form any good basis of differential diagnosis.

The appearances known to most physicians as retinitis albuminurica occur in a fair proportion of cases, but there are changes in the blood-vessels, the optic nerve, and the retina which are of much more frequent occurrence. The slighter forms of these changes are diminution in the size of the arteries, a loss of transparency of the optic disc, probably due to a slight optic neuritis, and a haziness of the retina in the neighbourhood of the optic nerve and near the larger vessels. These changes in the retina we think are in part due to an oedema, but it may be that sometimes we have to deal with a slight inflammation of its structure.

Retinitis albuminurica occurs in a fair proportion of cases. In certain of its forms it is so characteristic as to be quite unmistakeable, and, on several occasions, its discovery has led to the detection of unsuspected kidney disease. It is most frequently found in granular kidney, but is not altogether unknown in the other forms. We have never seen it in recent acute tubule nephritis, although we have, in this disease, from time to time observed the haziness of the retina already mentioned. One or two cases have been recorded²⁴ in which the albuminuric retinitis seemed to precede the appearance of albumen in the urine. These cases we consider, however, doubtful, and probably due to some temporary diminution or suspension of the passage of albumen in the urine. The disease presents various appearances—viz., spots of degeneration, hæmorrhage, optic nerve inflammation, and changes in the retina and its vessels. Gowers has described in his *Medical Ophthalmoscopy* four types of this affection, according as one or the other of these symptoms predominates. While agreeing with him in the main, we think it perhaps not advisable too strongly to draw a line of demarcation between the various forms. No matter with which form we may be dealing, we generally find that the appearances characteristic of the other types of the disease are more or less present. The spots, which in reality are degenerations, for the most part are found in the neighbourhood of the macula. Most typically they exist as isolated spots arranged in a somewhat stellate fashion round the fovea centralis, but at times they are more or less confluent, and, occasionally, we have patches which sometimes extend over a considerable surface of the retina. Accompanying these we have almost invariably small hæmorrhages or their

remains. These hæmorrhages are small and isolated; they are generally in the substance of the retina, and, following its fibres, they appear striated.

Again, the hæmorrhages are sometimes the prominent feature. They may be small and isolated, or they may be large and more or less flame-shaped. Generally speaking, we have a few of the white degeneration spots present with these hæmorrhages, but we remember to have seen one case in which the retina were strewn with hæmorrhages, in which only two or three small spots could be detected. In the hæmorrhagic retinitis it is not infrequent to find considerable inflammation of the retina, characterised by opaqueness of its substance, and by the hiding of the retinal vessels behind exudation. Inflammation of the retina is again, in certain cases, the most noticeable feature, but it is almost invariably accompanied by small hæmorrhages, and one or two areas of degeneration. Sometimes the hæmorrhages are subhyaloid. Here they are round, and want the striation, which is always to be observed when they are in the layers of the retina.

Again, we have already said that very frequently we find a loss of transparency in the optic disc. This was almost constantly present in those cases which we observed in the wards of the Royal Infirmary. Sometimes, however, the change in the nerve amounts to more than a mere opaqueness, or even slight inflammation. We have occasionally, although comparatively rarely, acute inflammation, amounting to papillitis. We do not know that we have ever seen such a case, although we have several times had an opportunity of seeing tolerably acute inflammation, characterised by dense redness of the disc and loss of distinctness of its margins. It is well to remember, when we see a case of acute papillitis, the possibility of its being of renal origin, for there is apt to be confusion in so far as the acute choked disc, such as is found in brain tumour, is sometimes accompanied by degeneration spots in the neighbourhood of the macula. The condition of the urine and the clinical history of the case generally serve to remove all reasonable doubt.

Some authors have tried to establish a special relationship between albuminuria and senile cataract. No doubt, in many elderly persons who come under the care of the ophthalmic surgeon for cataract, albumen is found in the urine. As a rule, it is a mere trace, and we are not aware that it exists in a greater proportion of these cases than it does in persons at that period of life who are not the subjects of lenticular disease.

Cataract is certainly the most characteristic ocular change in diabetes, and it may occur in persons at any time of life who are the subjects of this malady. We have seen it in very young subjects, in persons in middle life, and again in old age. So well recognised is it, that in most text-books on ophthalmology mention is made of a special form of cataract as diabetic. Its formation seems to be connected with the increased specific gravity of the nutrient fluids. Judging from the few cases which have come under our own observation, we are of opinion that the formation of cataract makes the prognosis much more serious, several of the cases having terminated fatally within a comparatively short time of the onset of the cataract. We remember to have seen two cases in which there was a considerable amount of sugar in the urine, and which had been known to exist for a long series of years, in which the lenses were perfectly normal. Sometimes we have changes in the fundus. These chiefly consist of white patches of degeneration near the macula; they are to be distinguished from those of albuminuria by the fact that they are different in shape, being distinct patches, and more like those associated with choroidal degeneration; only, as a rule, they want the black pigment round their margin, and are dingy in colour, not brilliantly white, as is the case when we are dealing with reflection from the sclerotic. Often we find opacities in the vitreous humour; these are most likely of hæmorrhagic origin (see Masselon and Wecker, *Traite d' Ophthal.*)

In all cases of profound and chronic anæmia, the colour of the fundus is, as we would expect, markedly altered. It is paler and more straw-coloured than in health. The arteries are generally somewhat diminished in size, but may be normal; while the veins, on the other hand, are increased in size. We have seen one or two cases in which this increase was a very prominent feature. The enlargement of the veins does not arise from distension with blood, but is due to flattening from atony. Hæmorrhages, generally small in size and multiple, are by no means infrequent. In leucocythæmia, white spots have been observed.²⁵ These are said to be due to degeneration, and also to diapedesis of the white corpuscles.

In some patients we find hæmorrhages in the retina which seem to be a clinical fact *per se*, and which are probably the expression of some diseased condition of the vessels either of the choroid or of the retina. Often this so-called hæmorrhagic retinitis is the precursor of cerebral hæmorrhage and ought, therefore, to be regarded with caution.

There is scarcely a tissue of the eye that is not affected by syphilis. To do the subject justice would require almost a separate thesis by itself, for there are manifestations of syphilis in the eye, both in the primary and the secondary stages of the disease, and also in those forms of it which are inherited. It may attack the cornea, the iris, the choroid, and less frequently the retina and optic nerves. The primary sore itself may be on the eyelids, and even involve the conjunctive. The chancre does not, in this situation, differ from chancre in other parts. Of secondary symptoms, probably the most frequent is acute iritis. It is generally found along with characteristic skin eruptions, and is sometimes very acute locally without causing great pain or photophobia (fear of light). In severe cases, however, small tumours (gummata) may be formed in the iris, and sometimes the inflammation may extend to the ciliary body. The symptoms are intense deep pericorneal injection, often accompanied by a considerable amount of conjunctivitis. The iris appears muddy and loses its normal brilliancy, and its structure can, as a rule, no longer be seen; the pupil does not dilate freely to atropine from the presence of adhesions between the margin of the iris and the lens capsule. If the case is very severe, we may expect to find gummatus nodules in the substance of the iris. There are few diseases of the eye which yield more thoroughly and readily to treatment, but almost in all cases traces of the iritis remain in the form of pigment spots on the lens capsule, and, as a rule, there are some permanent adhesions. Mr. Hutchinson, whose authority in such matters no one will dispute, is of opinion that recurrent iritis is never of specific origin, but is almost invariably arthritic. Of the importance of this the following example from our own case book may be taken as illustrative:—A gentleman, aged about 30, consulted us about a year and a half ago, for severe iritis of one eye. We found, on enquiry, that it was the third attack which the patient had had in the same eye. He admitted to us at once that he had had syphilis when a younger man, and attributed his iritis to that circumstance. He told us also that before he acquired syphilis he had suffered from an attack of acute rheumatism; both his father and mother were the subjects of gout. At the time of our visit it was found that he had severe pains in the back and in the limbs, the latter being chiefly in the shin bones, and more severe at night. Before seeing us he had just undergone, under medical supervision, a protracted course of mercurials and tonics, and, although better, still suffered a good deal.

Knowing Mr. Hutchinson's opinion, we came to the conclusion that the iritis, at any rate, was not due to syphilis, but was rather the expression of gout or rheumatism. We at once put him on alkalies and colchicum, and locally put a moderate amount of atropine into the eye, with the result that before long the iritis subsided, and with it the other symptoms from which he suffered.

The cornea is most frequently affected in inherited syphilis. We are not aware that we have ever seen keratitis in acquired syphilis. So far as we have observed, we are inclined to describe two classes of corneal affection. In one case the disease takes the form of acute interstitial keratitis, generally affecting both eyes, from which the patient, as a rule, recovers. Sometimes, however, there remains a certain amount of opacity, and we have known the cornea to ulcerate, giving rise to the formation of anterior staphyloma. A young boy recently came under our observation who certainly suffered from this affection. Before we saw him, he had had the disease in one eye for a considerable time, and the other eye had recently become affected. On examination, we found that the eye first affected had, at the centre of its cornea, a very dense white opacity, and that there was, at the centre of this opacity, a small ulcer; the rest of this cornea was a mass of blood-vessels. In the other eye we observed diffuse interstitial keratitis, with a considerable amount of vascularity at its margins. We could still see the iris, and found that it did not dilate to atropine; we therefore had to deal with a case of kerato-iritis. At the same time there was an inflammatory affection of the right knee-joint. The patient was put upon large doses of the potassio tartrate of iron, and atropine was used locally; he also got small doses of mercury with chalk. Under treatment the second eye improved rapidly, the boy gained in flesh and strength, but a large staphyloma formed on the other eye. We think a very essential part of the treatment of this case was the removal of the patient, as soon as it was safe to let him away from our immediate supervision, to fresh air. The lad had the teeth so well described by Mr. Hutchinson, and cicatrices at the angles of the mouth.

The family history was very instructive. The mother had aborted in her first two pregnancies, and the father, whom we did not see, but whose condition was described to us by the family medical man, suffered severely from arthritic pains in the limbs, and died a comparatively young man of cardiac valvular disease. The medical man had no

doubt in his own mind that he was the subject of specific disease.

In the other class of corneal affections, we believe that the symptoms are never so acute but that they are much more chronic in their duration and much more intractable to treatment. We have always more or less interstitial opacity of the cornea. The anterior chamber is deep, the iris is more or less affected, and, in the advanced stages of the disease, there is thinning of the sclerotic, so that the bluish tint of the underlying choroid is apparent. These cases also are characterised by cicatrices at the angles of the mouth, and by notched teeth. They generally have the aspect of the lesser forms of buphthalmos, and are almost invariably accompanied by deafness in one or both ears.

The choroid may be affected both in acquired and in inherited syphilis. Very often we find persons who have inherited the disease to be the subjects of choroïdo-retinitis. We therefore, find destruction of tissues, generally speaking, in rounded areas, with pigment at their margins. The centre of the patches is much whiter than the surrounding tissue from reflection from the underlying sclerotic, but often we have spots of pigment on it, and sometimes even trabeculæ of comparatively healthy tissue. Various names have been given to these forms of choroiditis, such as *circumscripta* and *areolaris*. These names denote, however, rather a difference of distribution than of pathological process. We do not mean to insinuate that all cases of destructive choroiditis are due to specific taint, but we know that there is a gathering strength of opinion in the ophthalmic world that they are at least very suspicious. In inherited syphilis the condition is often very chronic, being in some cases more of an atrophy than an inflammation, and when the changes take place in the periphery they very frequently resemble retinitis pigmentosa in the shape and distribution of the retinal pigment.

When the choroiditis is a consequence of acquired syphilis, we often observe nodules of exudation which after a time absorb, leaving a bare sclerotic and a deposit of pigment round the spot. In some cases, more especially in what Foerster described as areolar choroiditis, the degeneration spots are perfectly round, with punched out edges; very frequently we find a large path of degeneration with several of these round spots at its margin and in its immediate neighbourhood.

The disturbance of vision caused by this disease will largely depend upon the part of the eye affected, and on the extent

to which the retina had become involved in the cicatricial and inflammatory processes. Thus, when the macula is involved the visual acuteness may be very seriously impaired, but when the disturbance is more in the periphery the vision may be exceedingly good. As a rule, however, on testing the field of vision by methods which we shall presently explain, scotomata, either partial or total, are almost invariably found. By partial scotoma is meant the destruction of certain functions of that part of the retina while others remain intact. Thus, it may respond to tests of the light sense, but be wholly blind to tests for colour sense, or at least for certain colours. By total scotoma is meant the entire destruction of the function of a limited portion of the retina.

In certain cases we have acute neuro-retinitis. This is a somewhat rare affection, but during the last six months we believe we have seen one of the most typical cases on record. A lad came to us nearly blind in both eyes; he could count fingers only at the distance of a foot. We found from his medical adviser that he had not very long before contracted syphilis of a very virulent type, and had passed through the usual secondary symptoms in his throat, his skin, &c. So defective was his sight, that he had to be led by the hand. On examination of his eyes, we found that both pupils dilated regularly and fully to the mydriatic, which was used for purposes of examination. Scarcely any details of the fundus could be seen, even on the most careful inspection by the direct method. We could dimly see the nerve and vessels in each eye, but they appeared as if seen through a dense November fog. The fundus appeared yellow, and the arteries and veins of a dirty brown. So far as we could observe, the optic nerve and surrounding retina were absolutely of the same tint; there was no line of demarcation whatsoever. It is more than probable that the appearances were, in part, due to inflammation of, or at least effusion into the vitreous humour, but that they were not entirely due to this cause subsequent events made manifest. We commenced very active treatment by the administration of calomel with opium internally and inunctions of oleate of mercury on the temples. Gradually the sight returned, and the condition of the eyes improved. The vessels slowly became more distinct, and if there was any effusion into the vitreous by degrees it became absorbed. At the present time, now at least six months from the period at which we first saw him, the vitreous has entirely cleared, so that we are able without any difficulty to see both the

vessels and the nerves. We still have, however, in them abundant evidence of an acute neuro-retinitis. The nerves have completely lost their transparency, their margins are quite indistinct, the retinæ surrounding the nerves are opaque, and both the nerves and retinæ are of the same pale straw colour. Vision has very markedly improved, in so far as the patient can see, and that without the aid of glasses, good sized type. He is at present undergoing treatment with tonics and small doses of grey powder. We hope that his condition will still be much improved.

Nor must the physician forget the possibility of acute papillitis being due to gummata of the brain, and even sometimes to specific inflammation of the meninges. Such papillitis is, of course, more frequent in the tertiary stage of syphilis, and it presents no features which would serve to differentiate it from other forms of papillitis; the clinical history alone can solve the question in doubtful cases. Again, as we have already seen, many forms of oculo-motor paralysis are due to syphilis in some form or other.

Atrophy of the optic nerve is also not unknown as a complication of specific disease, a circumstance which should always be taken into account when investigating the nature of any case of that affection.

We now come to the last item of our enquiry. Without doubt the examination of the light and colour senses often affords information of the greatest importance to the physician. Under this heading we of course include the examination of the field of vision in general.

The sense of sight consists essentially of three functions—viz., the sense of form, the sense of colour, and the sense of light. Under the heading of visual acuteness we have already said all that we think necessary as to the sense of form. The senses of colour and of light, however, merit some further special attention. The light sense is the one most difficult of investigation, and yet it is very often affected in diseases of the optic nerve, and may indeed be the first indication of impending atrophy. In certain diseases of the retina also it very often is impaired, as in retinitis pigmentosa. There are various ways by which it may be investigated. One of the best known methods is that of Foerster.²⁶ This surgeon uses a box in which are placed at one end a number of lines ruled on white paper, at the other there is an opening for the patient's eye, and close beside it another opening at which a candle is held. This second opening is closed by a special shutter, which

can be opened to a regulated amount; when closed, the interior of the box is perfectly dark. Of course, the lighted candle is covered in, so that no direct light from it can reach the patient's eye. The eye being applied to the opening, the shutter is very gradually opened, until the patient is conscious of a sensation of light from reflection from the surface of the paper. That point is then noted, and the shutter is further opened, until the patient is able to see the ruled lines. In this way the light sense can be tested in any number of eyes, but of course such a test is only comparative, not absolute. We are not able, except by examination of a large number of presumably healthy eyes, to arrive at any normal standard. Again, although this method is available for the testing of the light sense of a retina as a whole, yet it is of no use in testing the light sense of any small areas of any retina; nor are we aware of any other method which would give the desired result. The apparatus for testing very limited areas would require to be very complicated, and moreover, such an investigation would almost necessitate special knowledge on the part of the person examined.

Another test consists in the mixing of white on the ground of a black, rapidly rotating disc. This is based on the theory of Clark Maxwell's well known rotating disc for the examination of the mixture of colour. Gradually a little white is introduced into the black, till the patient becomes conscious that he is no longer looking at a black object, but at a very dark gray. By experiment, we find for each eye the smallest increments of white of which the individual is conscious. Many excellent and useful results have been got by this method, but as yet it is of more value as a physiological experiment than as a clinical method.^{27, 28}

Various test types have been devised for the examination of the sense of light. The two best known are Wecker's²⁹ and Bjerrum's. The former consist of white letters drawn on a grey ground; the saturation of the grey colour is at first very dark, but gradually diminishes, till the letters and the ground are nearly of one tint. One great objection to Wecker's type is that all the letters are nearly of the same size, and hence the test is of no use for a patient whose form sense is at all defective. More recently, Bjerrum has devised a set of types which overcomes this difficulty; these differ in size according to Snellen's scale of distant types. They are made in three degrees of intensity, and form an exceedingly good method of testing the light sense. The types may be bought of Messrs. Curry & Paxton, London, and are accompanied with full

explanations. We are not aware as to where details of Bjerrum's investigations are to be obtained.

Ever since the days of Young and Dalton it has been known that the colour sense is congenitally defective in certain persons, but it is only of more recent years that this has been turned to account for the investigation of disease. The examination of colour in many cases demands the utmost care, and ought not to be left in the hands of unskilled parsons. We are of opinion that, before this sense can be properly investigated, the examiner ought to know something of the physics of colour. We had the advantage, while a student, of following for four consecutive months the instructions of Professor Donders on this subject. At that time we used entirely a double spectroscope, which gives two spectra, one above the other; by a special arrangement one spectrum was made movable over the other, and in this way any colour could be placed above any other colour. Thus we could place the blue over the red, the green over the red or any other colour that we might desire. By means of a Vierordt's diaphragm we could isolate any portions of the spectra which we wished, and place them above each other. There was also an arrangement of Helmholtz' slits by which the amount of light reaching each spectrum was carefully regulated. In this way we could take care that the saturation of the two colours, the one above the other, which we wished our patient to examine, was precisely identical, or at least was as identical as the normal eye could make them. The advantage of this arrangement is that many persons who are in reality colour blind escape detection when tested by ordinary methods, from the fact that they form a rough idea of what a colour is, not from seeing its pigment, but from the fact that, in the objects which are around us, certain colours may have, as a rule, a deeper saturation than others, and hence with a certain degree of intensity they associate a certain colour. This method of testing we found to be highly satisfactory from a physiological standpoint; it was not, however, quite so satisfactory for clinical purposes.³⁰ For one thing, the apparatus is exceedingly expensive, and cannot conveniently be moved from one place to another. Moreover, it is really only of use for the investigation of the sense of colour at the point of fixation, and cannot well be used to test the colour sense in the periphery of the retina.

One of the best clinical tests we have is Stilling's test types.³¹ These are arranged so that the component parts of each letter and its background are formed of the different confusion colours, so that if a patient be colour blind he is

unable to read the letters. The different colours used are; as far as may be, of precisely identical saturation, which diminishes the chance of mere guess work. Holmgreen's wools are also of considerable clinical value. We believe that this method of testing is now so generally known, and so universally had recourse to in the medical wards of all our infirmaries, that it is quite superfluous to give any description of it here.³²

These tests are from their nature only suited for the examination of the colour sense in general; they are not sufficiently delicate for the requirements of many cases. Thus, a patient may have extremely good colour sense in all parts of his retina except at one small area. This area may be at the macula, as occurs in retro-bulbar neuritis, or it may be more in the periphery; indeed, the defect may be situated at any point, or it may consist in a more or less concentric limitation of the colour sense for one or more, or all colours towards the periphery. We give two charts of very extraordinary limitation which we recently took in a case which we believed to be one of pressure in the region of the angular gyrus. Moreover, it should be noticed that as we go from within outwards towards the periphery, certain colours cease to be seen before others. Thus, the red is the first to go, then the green, then blue, then yellow, and lastly violet. Beyond the region of the violet in the healthy eye there is a zone in which no colour is recognised, but all colours are simply seen as light; white also is visible in this area. The perimeter affords an easy means of examining these phenomena, and also of determining the presence of any local defect in any part of the retina. Such defect is called a scotoma, which may be absolute—that is to say, the part involved may not respond to any colour; or again, it may respond to one or more colours, but not to others, when it is said to be negative.

Any form of perimeter will answer the purpose well if properly used, but certain precautions should be taken, without which no reliable results can be obtained by any perimeter. In the first place, the centre of rotation of the eyeball should be, as nearly as we can arrange it, at the centre of curvature of the perimeter. If this be not done, then the chart obtained is not accurate, and, although it may show a scotoma, it does not fix accurately either its size or its position in the field of vision. Then, again, the retina and the test object should be made foci conjugate to each other. When this precaution has been neglected, we have not infrequently seen men put down as colour blind when, on a more careful

adjustment of the optical apparatus, it has been proved that the colour sense was normal. In making these adjustments, however, care must be taken not to magnify the test objects more than can be helped, because if the test object is magnified, its image may overlap a small scotoma, and thus come to simulate a healthy part of the retina, allowing the patient to see the colour perfectly. As a rule, tangent perimeters are seldom used, the small circular ones being the more convenient; we believe, however, that the large tangent perimeter of Bjerrum³³ is probably one of the most satisfactory instruments in use.

The patient being placed at the perimeter, the examination is conducted as follows:—He is made to look straight in front of him at the fixation point, and a small coloured object, such as a minute piece of red paper, is gradually brought from the end of the perimeter arc, from the periphery towards the centre. The patient is generally asked to make a sign, first, when he sees the object, and second, when he can distinguish the colour of the object. It is then moved on towards the centre, and if at no point during its course the patient becomes unconscious of the colour, then we say that for that meridian of the retina there is no scotoma. The perimeter arc is then moved into positions corresponding with a large number of the retinal meridians, and the experiments are repeated. We generally move the arc through distances of 20°, and thus go right round the circle. If, while the coloured object is being moved from the periphery towards the centre, the patient becomes unconscious of it, then we conclude that there is most probably a scotoma either absolute or negative, and investigate for what colours that part of the retina is defective.

In certain affections of the nerve, more especially in the early stages of parenchymatous neuritis, we find a limitation more or less concentric for all the colours in the periphery. In various forms of retro-bulbar neuritis, such as in tobacco amblyopia, we find a scotoma in the region of the macula—the so-called central scotoma. This may be present long before the form sense has much deteriorated, and therefore while the visual acuteness is good. In other cases scotomata may be found in diseases of the retina or choroid. This is a matter, however, chiefly of interest to the ophthalmic surgeon.

Lately we have experienced some little difficulty in conducting minute examinations from the fact that the colour of the objects in the room, where our examinations are conducted, and also the reflection of light from the test object, often help to confuse the patient, and make the results less reliable. We

have recently adapted the electric light to a perimeter in such a way that it can be used in a dark room, and we derive our colours from small pieces of glass, carefully selected, so as to be as nearly as possible of the same pigment saturation. Between the coloured glass and the patient's eye there is a diaphragm, by which we can regulate the amount of coloured surface, so that we can make it from half a millimetre to one centimetre square. The electric light is the only one which it is possible to use, because with any other the flame would sometimes have to be inverted. There is another jet of electric light at the fixation point, so that the perimeter can be used in otherwise absolute darkness. By the kindness of Dr. R. S. Thomson, we have been enabled to place the apparatus in the electrical room of the Western Infirmary.

Not only is the perimeter of use for the testing of colour sense, it is also of service in the detection of hemianopia. By hemianopia is meant the abolition of vision, roughly speaking, in one half of one or both retinae. This is not the place to enter into a discussion on the situation of the special centres for vision in the brain cortex. A full account of the present state of our knowledge will be found in *Ferrier's Croonian Lectures* published in 1890; there he gives a very adequate account of his own work and that of others who have worked specially in this department of physiology. It is well to remember that, although hemianopia is, in the large majority of cases, a result of disease in the optic tracts, chiasma, or optic nerves, yet it is not impossible to have it due to a lesion in the cortex. Thus, in many of Ferrier's experiments, destruction of the occipital lobes caused hemianopia of both eyes, the half retina on the same side as the lesion being affected in both cases. True, this hemianopia was, for the most part, only temporary, and in time passed off; yet, it is quite possible to believe that it may sometimes be permanent. So far as Ferrier's observations went, he found that the angular gyrus was more immediately connected with central fixation of the opposite eye, and to a less extent with that of the eye on the same side. Thus, total destruction of the right angular gyrus would cause amblyopia of the left eye, and would probably impair the visual acuteness of the eye on the same side. If these views are correct, we have in one angular gyrus, say the left, the centre for the left half of each retina, and for the macula fixation of the opposite eye (see also Gowers, *Diseases of the Nervous System*, vol. ii, 1888, p. 19). There is no doubt also that in the cortex there are special centres for colour, and it is quite possible to have colour hemianopia without any

hemianopia for form. The colour centres are also probably situated in the angular gyrus. Further than that, however, we refuse to go at present. However interesting the further speculations of physiologists may be, we feel that, as yet, there is no reliable basis for clinical work. Wildbrand, quoted by Ferrier, has pointed out a way in which we may be able to differentiate between a hemianopia due to lesion of the cortex and one due to disease of the optic tract or optic nerve. This test is based on the fact that the optic nerve not only conveys impressions to the centres of vision, but also conveys stimuli to the nucleus of the third nerve. Hence, if the hemianopia is due to lesion in the tract, irritation of the hemianopic side of the retina will not cause contraction of the pupil. If, on the other hand, the hemianopia is cortical, then the optic nerve and tract being healthy, the pupil will respond as usual when the hemianopic half is stimulated. Great care must be taken, however, in arriving at any conclusion, for it is exceedingly difficult to stimulate one half of a retina without at the same time somewhat affecting the other. Moreover, if there be a cortical lesion, we are not unlikely to have atrophy of the optic fibres as a secondary event; hence we may put down a hemianopia as being due to a nerve disturbance, when in reality it is central.

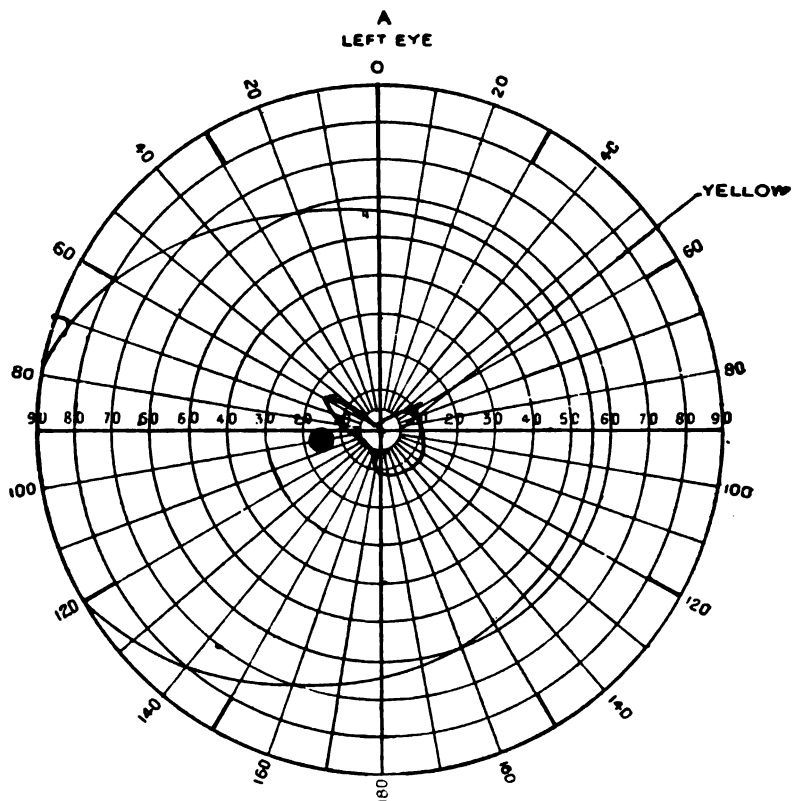
One other class of phenomena also appears to be due to lesion in the anterior portion of the angular gyrus; we refer to word-blindness. By this is meant that a patient fails to connect printed symbols with the spoken words. It is a rare occurrence, but one or two well defined cases have been recorded. Before passing from this subject, we should like to give the details of a most interesting case which we are at present investigating; it seems to us to be one which in its clinical features points most distinctly to some disease in the visual centres. The symptoms are such that we were led to examine externally the parts of the cranium corresponding to the visual areas of the brain, and found, as we had anticipated, evidence of some mischief on the left side, just over the angular gyrus. In that situation we found a small exostosis, and the symptoms are such as to induce us to believe that there may be some pressure inwards. The patient is a healthy man, aged 23 years, but he has suffered from his eyesight for some considerable time, certainly for five years. The first thing he noticed was that he could not see very small type, or other minute objects. In the year 1883 he began to suffer from severe pains in his head, chiefly in the frontal region and in the eyes. Ever since that time he

has had attacks of severe headache, which come on once in six days, and each attack lasts for about one day. It is well to note here, however, that he has about 2 D of astigmatism in both eyes, and most likely his frontal headache and difficulty in seeing minute objects are due to this circumstance. The special symptom of which he now complains is, that at times with the left eye he only sees the lower halves of objects. This form of hemianopia is not constantly present, but comes on at intervals, and, even during an attack, he can see perfectly well with the right eye. Patient has never at any time lost consciousness, and there have never been convulsions or any vomiting. Both pupils are somewhat dilated, the left a little more so than the right; they respond perfectly to light and shade, each eye contracting both pupils. The right optic nerve is typically healthy, as is that of the left, except that its physiological cup is somewhat filled in. The margins of the left disc are most carefully examined, but are found to be typically healthy.

Perimetric examinations show both fields of vision to be very much contracted, yet the visual acuteness of both eyes is not far from normal, but that on the right side is not quite so good as that on the left. His family history is thoroughly good; there is no history of any other member of the family being affected with epilepsy or hysteria, still his attacks of absence of vision in one half of one eye might possibly be due to an epileptiform seizure, or at least to something akin to it. Were such the case we would not expect to find permanent loss of function, as is here indicated by the great contraction of the field of vision. This is of the most marked kind for both eyes, for all colours, and even for white objects. We give on the next two pages the charts of yellow and green taken for the left eye; the red is almost as bad, and the white is contracted for at least one half its normal.

Before concluding we must refer, and that briefly, to the ordinary conditions of hemianopia. These depend upon the arrangement of nerve fibres in the optic tract and chiasma. In the right optic tract there are fibres which convey impressions from the right half of each retina, consequently lesion of the right tract will give rise to left hemianopia; that is, to an absence of vision for impressions coming from the left side of the body. In the same way, lesion of the left optic tract will give rise to right hemianopia. Again, as the fibres for supplying the inner half of each retina decussate in the chiasma, pressure on the chiasma, as occurs in certain diseases of the third ventricle, will give rise to double temporal hemianopia. A

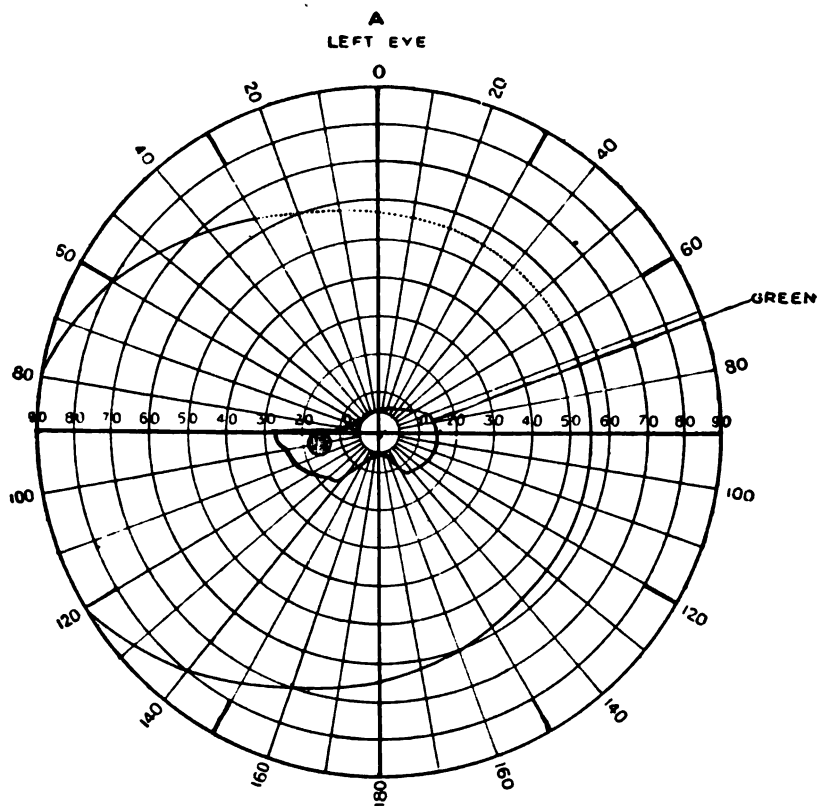
very rare form of hemianopia is double nasal hemianopia. This can only occur when there is a double lesion affecting the direct fibres of each optic nerve. We have never seen a case of it, but we know that certain well authenticated cases are on record. As a rule, the line of demarcation between the blind and seeing sides of a retina is vertical, but generally



speaking, does not involve the macula lutea; as a rule, it escapes and is useful for central fixation. Gowers points out, in his *Diseases of the Nervous System*, that this immunity of the macula is to be accounted for by both the direct fibres of the nerve and those decussating in the chiasma containing fibres from the macula; so that each macula sends impressions up both optic tracts to both centres, and therefore central

vision of either macula is not likely to be wholly destroyed by even a complete lesion of one tract.

Little need be said as to the nature of the lesions which will produce hemianopia; their diagnosis largely depends upon collateral evidence, and the nature of the hemianopia is in no ways indicative of its cause. Thus, it may be due to lesions



of the tract, the chiasma, or the cortical centres. These may in their nature be due to tumour, gummata, hæmorrhage, or tubercular disease. Sometimes a hemianopia improves. This may be due to either the improvement of the lesion, or to the other side of the brain taking up, through the decussating fibres, the function usually carried on by the injured cortex.

We have said that the line of demarcation is, as a rule,

vertical; it is not always so, however, but is often inclined more or less at an angle. This most likely depends upon the arrangement of the decussating fibres. Sometimes, again, we have not the whole half of the retina affected, but only a small sector of it, sometimes even less than a quadrant.

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CURRENT TOPICS.

MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.—At the annual general meeting of this Society, held in the Faculty Hall, 242 St. Vincent Street, on 13th May, the following gentlemen were elected office-bearers for Session 1892-93:—

President, **DR. JOSEPH COATS.**

Section of Medicine.

Vice-President, . . **DR. MIDDLETON.**
Councillors, . . **DR. ALEX. MILLER and DR. AULD.**
Secretary, . . **DR. C. O. HAWTHORNE.**

Section of Surgery.

Vice-President, . . **DR. W. J. FLEMING.**
Councillors, . . **DR. MACARTNEY and DR. DALZIEL.**
Secretary, . . **DR. JOHN BARLOW.**

Section of Pathology.

Vice-President, . . **DR. JOHN LINDSAY STEVEN.**
Councillors, . . **DR. CHAS. WORKMAN and DR. JOHN BROWN.**
Secretary, . . **DR. R. M. BUCHANAN.**

Section of Obstetrics.

Vice-President, . . **DR. SAMUEL SLOAN.**
Councillors, . . **DR. M. CAMERON and DR. LAPRAIK.**
Secretary, . . **DR. LAWRENCE OLIPHANT.**

Treasurer, **MR. HENRY E. CLARK.**

General Secretary, . . **DR. WALKER DOWNIE.**

ABERDEEN.—STUDENTS' REPRESENTATIVE COUNCIL.—At a meeting of the Students' Representative Council at Marischal College—Mr. Ashley W. Mackintosh, M.A., the President, in the chair—the following resolution anent the admission of women to the University was proposed by the chairman, and, after discussion, unanimously agreed to:—"That the Students' Representative Council of Aberdeen University, understanding that the Lord Rector's Assessor has given notice of a motion praying the University Court to sanction (in terms of the Scottish Universities Commissioners' Ordinance No. 18, General No. 9) the admission of women to graduation in the said University, desires to place on record its satisfaction that the claim of women to receive a full academic training has been recognised by the Universities Commissioners, and its respectful hope that the University Court of the University of Aberdeen will see fit to open freely the doors of that

University to students without respect of sex; and instructs the Secretary to communicate the terms of this resolution to the said University Court, and to the Students' Representative Councils of the other Scottish Universities."—(*Glasgow Herald*, 23rd May, 1892.)

NEW DRUGS, PREPARATIONS, &c.—*Messrs. Burroughs, Wellcome & Co.*, have sent us specimens of Malto-Ricine (Kepler Extract of Malt combined with Castor Oil). This new preparation is a solution of the finest tasteless castor oil in Kepler extract of malt, and the disagreeable taste of the castor oil is so masked as to make it acceptable to all classes of patients, particularly to children. The aperient action of the castor oil is decidedly enhanced by the intimate coalescence of the oil globules with the extract of malt, ensuring its perfect absorption from the alimentary canal, as it passes out of the stomach into the intestines in the same condition as it is taken. There is, therefore, no possible chance of the oil eructating or exciting nausea.

From *James Marshall*, Glasgow, we have received samples of Prepared Groats and Prepared Barley, which should be borne in mind when practitioners are arranging dietaries for invalids and children.

The Medicinal and Surgical Plasters of *Messrs. Johnson & Johnson, Limited*, of London and New York, of which a number of samples are before us, are well worthy the attention of the profession. They are beautifully made, and seem to be well adapted for the different purposes for which they are intended. We would specially call attention to the vesicating plaster which they have called "Canthos."

REVIEWS.

A Treatise on the Ligation of the Great Arteries in Continuity, with Observations on the Nature, Progress, and Treatment of Aneurism. By CHARLES A. BALLANCE, M.B., M.S. Lond., F.R.C.S., Assistant Surgeon to St. Thomas's Hospital; and WALTER EDMONDS, M.A., M.C. Cantab., F.R.C.S., Resident Medical Officer, St. Thomas's Home. London and New York: Macmillan & Co. 1891.

THE volume before us is written with the chief object of answering the question, What is the best method of perform-

ing the operation for the ligature of arteries? And to answer this, the authors have spared neither means nor time. The subject is dealt with in the most complete and exhaustive manner. Not a point of detail has been left uninvestigated, and we might almost add unsettled. Both by a large series of experiments, and numerous careful *post-mortem* dissections, have the authors striven to verify every statement; and, at the close of each chapter will be found a short summary of the results obtained, and their practical bearing on the practice of surgery.

If one portion of the book may be said to be of more interest than another, it will probably be found to be that which deals with the conduct and fate respectively of the corpuscles, the clot, the coats, and the ligature. In each of these instances the subject has been most carefully and thoroughly worked out with regard to the conduct and fate of the clot. Mr. Ballance, we believe, more especially, has already rendered pathologists familiar with his views on the point. Briefly expressed, they are as follows:—The clot takes no part in the subsequent organised obliteration of the artery. Its functions are threefold: “firstly, to act as a barrier or buffer between the impulse of the blood-stream and the seat of ligature, where important plastic actions are in progress which might otherwise be disturbed or interrupted; secondly, to afford some support, ladder-like, to the plasma cell invasion as the latter climbs across the cavity of the vessel; and, thirdly, to serve as food for the invading and actively proliferating army of plasma cells.” With regard to the conduct and fate of the coats, the authors show that for efficient occlusion mere coaptation of the internal walls is sufficient; that where the coats have been ruptured the resulting weakness is more likely to lead to hæmorrhage. For a properly organised obliteration to take place, two factors are essential, either conjoined or separately—the contact of the clot with the walls, or the contact of the walls with each other. It is only in this way the plasma cells, which come from the arterial wall, and form the true “cementing” material, can perform efficiently their function.

The remarks of the authors with reference to the various points connected with the use of ligatures will be found highly interesting and instructive. Thus it is shown that gold wire and probably platinum are the only ligatures that are absolutely unaffected by prolonged retention in the tissues. Wires of silver, lead, iron, and probably other metals, become sooner or later completely absorbed. The rate of absorption

of organic ligatures varies considerably. Chromic gut will hold sufficiently for a month; kangaroo tendon for about two months; silk holds longer still, and silkworm gut lasts longest of all.

A series of experiments was performed to test the best knot for purposes of ligature. The "granny," the "reef," the "clove hitch," the "Carrick bend," the "surgical knot," were all tried, but the authors found most successful what they call "the stay knot." This will be best understood by a reference to the diagram in the book. It consists in tying some three or four strands separately by single knots, and then collecting all the ends together and finishing as a "reef." In the other knots it was frequently found that the first catch slipped while the second was being tied, but by the authors' method this accident did not appear to happen.

The volume is elaborately illustrated, and with a bold print on stout paper, is made most readable. It is a work that will be largely referred to, and will prove of great use to surgeons, who need in these days to pay the strictest attention to detail.

Nerve Prostration and other Functional Disorders of Daily Life. By ROBSON ROOSE, M.D., LL.D., F.C.S. Second Edition. London: H. K. Lewis. 1891.

ENJOYING a large practice in London in the circles in which nerve prostration is most common, Dr. Roose has from his own observations, aided by the work already done by others, written the volume now lying before us. It is a pleasantly written book, which many will, no doubt, find of service to them in their daily practice, the clinical and therapeutic sections being its strong points. So far as we have seen, it is not a work of high scientific value, and it is rather weak in pathology; but it treats in a very readable way of a large number of common ailments, and the fact that it has reached a second edition in a short time proves that it has received the approbation of a large number of the profession.

The scope of the work is wider than its title might seem to imply. Besides treating of the functional disorders of the nervous system, such as neurasthenia, spinal irritation, sleeplessness, hysteria, epilepsy, chorea, neuralgia, headache, vertigo, various forms of paralysis, toxic neuroses, &c., large sections are devoted to the functional disorders of the circulatory, respiratory, and digestive organs. We thus find palpitation, syncope, angina pectoris, asthma, laryngismus stridulus,

dyspepsia, gastralgia, enteralgia, constipation and diarrhœa, and functional disorders of the liver fully discussed, and, in addition, there is a special chapter on obesity. It will be seen from the above that Dr. Roose has given a wide interpretation to what may be regarded as functional disease, and we believe, quite fairly, as the distinction between functional and organic diseases is more conventional than natural, and may, in fact, be regarded as an indication rather of our ignorance than of our knowledge.

The sections dealing with these diseases that may properly be referred to the wear and tear of life, and their treatment, appear to us to be the best; while those dealing with such subjects as chorea and epilepsy fall decidedly short of them, and are rather confusing at times. For example, on page 204, it would almost appear that Dr. Roose accepted the embolic theory of chorea, while on page 205 the reflex or functional theory of its causation is practically adopted. The description of chorea, too, is not altogether what we might have expected—for instance, very undue importance is given to the evidences of mental disorder which occasionally occur (page 208), and the chronic form of chorea is not properly distinguished; again, in the differential diagnosis, no mention is made of athetosis, which, without doubt, is the disease that most closely resembles chorea.

A Manual of the Dental Laboratory. By CHARLES HUNTER.
London: Baillière, Tindall & Cox. 1892.

THIS little volume, while not displacing the standard works on the subject of mechanical dentistry (so-called), is one from which the practitioner will get many useful hints, and from which the pupil will derive much information that will be a saving both to his pocket and temper. Within the memory of many, dental surgery has received an impetus bordering upon revolution, with the result that appliances have increased—all with the intention of furthering the most praiseworthy motive of bettering the finished work; and it is to be feared that sometimes the young practitioner is lacking the knowledge to discriminate between what is necessary, superfluous, or needless. To any in such a position we can heartily recommend the volume. As the personal care of health is a subject of which the author is fully aware, he might not perhaps have gone far out of his way had he recommended, in addition to the ordinary laboratory, an annex or second room

of smaller size, reserved for the working of plaster, moulding in sand, heating of vulcanisers, or any other process by which the atmosphere of the workroom is too often impaired. No one can very easily be a judge for another, yet it is with regret that we read the following:—"The importance in every dental practice of giving acute attention to exactness in keeping appointments will be at once admitted; but, unfortunately, this rule is too often more honoured in the breach than in the observance." That accidents will happen none who are familiar with the circumstances of the case will deny, but he who courts success will see to it that such incidents are the very wide exception, and by no means the rule. The practitioner has it very much in his own hands whether or no he will allow his time to be frittered away through the carelessness of his clients, and he can perhaps best effect this by impressing them with practical demonstration of the value of his hours in a punctuality that may appear to leave him the loser. It is only fair, too, to the subordinate in the workroom that a proper margin of time be left him, as hurry and failure are unpleasantly associated.

The book has so many valuable suggestions in it that it is possible that it would not have suffered much had the paragraphs on "Crown, Bar, and Bridge Work" been omitted *in toto*, as not much light is thrown on either kind of work, though the conclusions as to the sacrifice of sound teeth for the support of a bridge are in our experience but too well founded. In no respect does the work before us give greater pleasure than in the tone of moderation in which it is written—the result, we are convinced, of mature consideration and wide practical experience. Dogmatism, the *lac matris* of the charlatan, is conspicuous by its absence, the matter is as instructive as the style is clear, and we shall be surprised if it be not demonstrated that Mr. Hunter has earned a debt of gratitude at the hands of his confrères.

Differentiation in Rheumatic Diseases (so called). By HUGH LANE, L.R.C.P., M.R.C.S., Surgeon to the Royal Mineral Water Hospital, Bath, &c. Second Edition. London: J. & A. Churchill. 1892.

THIS little volume is based upon the author's experience at Bath, which seems to have been very considerable. The differentiation of the various forms of what is generally called chronic rheumatism is admittedly a very difficult matter.

Mr. Lane attempts it entirely from the clinical side, but, unfortunately, he is not gifted with the power of lucid and precise description, and so it is exceedingly difficult to determine what he would be at. There are no pathological facts in his work, and the illustrations which are given are so poor as to be of little service to the reader. The outstanding facts which remain with us after perusing his pages are—(1) that he regards chronic rheumatic arthritis and chronic rheumatoid arthritis as essentially different diseases, the former really being of a rheumatic nature, while the latter has no relation to rheumatism, but is based on a conjunct strumous and gouty diathesis; and (2) that the waters of Bath are of great value in the treatment of all these affections, especially when given a chance at an early stage.

On the Simulation of Hysteria by Organic Disease of the Nervous System. By THOMAS BUZZARD, M.D. Lond., F.R.C.P., Physician to the National Hospital for the Paralysed and the Epileptic. London: J. & A. CHURCHILL. 1891.

ACCUSTOMED as we are to hear of hysteria simulating various diseases of the nervous system, the title of this little volume is rather startling. No doubt Dr. Buzzard's object was to make it so, in order to draw more marked attention to the theme of his presidential address to the Neurological Society of London, of which this is an enlargement.

We regard this book as a valuable contribution to the discussion of the difficult problems that present themselves in the diagnosis of nervous affections. It is almost entirely made up of cases, with brief commentaries on the difficulties that they presented; and the author is honest enough to chronicle his mistakes in diagnosis, as well as his successes. The scope of the work is limited to the consideration of cases in which some loss of power in a limb or limbs was the dominating feature, and those cases are specially chosen which presented many of the symptoms which we are apt to designate hysterical. Many illustrative cases are given to prove that not unfrequently the diagnosis of hysteria is made when in reality the lesion is an organic one. The chief value of Dr. Buzzard's volume is undoubtedly to be attached to the manner in which he discusses the early symptoms of disseminated sclerosis, which he has presented in a light previously quite unknown to us. Those who have charge of obscure nervous cases would do well to peruse his remarks and to read his cases.

Contributions to Practical Medicine. By SIR JAMES SAWYER, Knt., M.D.Lond., F.R.C.P.Lond., F.R.S.Edin., Consulting Physician to the Queen's Hospital, Birmingham. Second Edition; revised and much enlarged. Birmingham: Cornish Brothers. 1891.

THESE essays and clinical lectures have all made their first appearance in various medical journals; in their collected form they seem to have taken with the profession, as they have now reached a second edition. This has given the author the opportunity of careful revision up to date, and of adding two new essays. The field covered embraces the causes and cure of insomnia, phthisical laryngitis and its treatment, the treatment of pulmonary consumption by chloride of calcium, the treatment of severe constipation and of intestinal obstruction, accentuation of the pulmonary second sound, floating kidney, the treatment of gastralgia, and the value of ether as a menstruum in medication of the skin.

Sir James Sawyer has had a large experience in hospital and in private practice, and his lectures are eminently practical. They are well written, and, conveying as they do the conclusions arrived at from a ripe experience, they are certain to prove of service to the practitioner who refers to them for assistance in the treatment of his cases. The views of the author are all in harmony with the best teaching of the present day.

Practical Zoology. By A. MILNES MARSHALL, M.D., D.Sc., &c.; assisted by C. HERBERT HURST, Ph.D. London: Smith, Elder & Co. 1892.

WE are pleased to observe that a third edition of this excellent text-book has been called for, and has just been issued.

In their preface to the first edition, the authors say that "this book has been written in the hope that it may meet the wants of those who desire to obtain a practical acquaintance with the elements of animal morphology, and who find the existing manuals insufficient for their purpose;" and, judging by the favour with which it has been received, it seems to have satisfactorily filled a place left vacant among the many text-books of the science.

The work is well adapted to the end which the authors had in view. Beginning with the protozoa, and ending with the mammalia, one or more representative and easily procured animals are taken from most of the groups, and very clear

and concise instruction is given for their examination and dissection. In the appendix are numerous formulæ for the preparation of the chief staining and other reagents. This edition has been revised, and several new diagrams have been added. The book is very complete, and well suited, as the authors intended, for a junior laboratory course. The earnest student of zoology must early begin to make diligent use of scalpel and forceps, and, in our opinion, this text-book is admirably fitted to help him into the right road at the beginning of his studies.

Zoology Notes. By ALEXANDER JOHNSTONE, F.G.S.
Edinburgh: E. & S. Livingstone.

THIS little work, which is written in compendium form, is intended to aid the student in preparing for examination. In spite of some inaccuracies, it may possibly prove helpful in revising the work, but is not to be recommended to any student seriously intent on his work.

The Medical Annual and Practitioner's Index for 1892.
Bristol: John Wright & Co.

THE best we can say of the 1892 issue of this *Annual* is that it is thoroughly up to date, and that it well deserves the popularity it enjoys. The general arrangement of the volume is as in former years. We would call special attention to the excellent *résumé* of Bacteriology, which has been supplied by Dr. Armand Ruffer, the value of which is considerably increased by several beautiful coloured illustrations. From this article the general practitioner will gain a very good idea of the recent work that has been done in this important branch of science. Dr. Colcott Fox has succeeded Dr. Jamieson in the department of Skin Diseases; and the subject of Spinal Surgery has been undertaken by Mr. Thorburn.

The Nursing Directory for 1892. First Annual Issue.
London: The Record Press, Limited.

THIS is a new start on the plan of the *Medical Directory*, being divided into sections for London, Provinces, Scotland, Ireland, and Abroad.

The lists for Scotland both of nurses and institutions is a

very meagre one, and we can scarcely think that it at all approaches completeness. If it be complete, there are only ten registered nurses in Glasgow. We observe also that while the London hospitals give a full statement of the nursing arrangements and regulations, the Scottish hospitals do little more than give the number of the staff; and the Western Infirmary, Glasgow, is conspicuous by giving the name of the matron only, and not even telling how many nurses there are. This is probably the fault of the hospital authorities, and ought to be remedied.

Most of the Scottish hospitals have an asterisk before their names, which means that they have not corrected the information given concerning them.

We trust that this directory, which is likely to be of great service to women who propose to devote themselves to nursing, will in future years appear with the defects we have mentioned remedied, and that it will have a successful career.

MEETINGS OF SOCIETIES.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.

SESSION 1891-92.

MEETING VII.— 5TH FEBRUARY, 1892.

OBSTETRICAL SECTION.

DR. SAMUEL SLOAN, *Vice-President, in the Chair.*

I.—NOTE ON THE INFLUENCE OF REST IN THE TREATMENT OF DISEASES OF WOMEN.

BY DR. SAMUEL SLOAN.

Dr. Sloan, the Vice-President of the Section, delivered under the above title his Introductory Address, which will be found in full at page 412.

Remarks upon the address having been invited,

Dr. St. Clair Gray said he presumed that Dr. Sloan had in view merely functional derangements of the pelvic organs.

Dr. Sloan replied that that was not so. He included minor inflammatory attacks, though he knew that he had not, in his paper, defined the cases in which he would apply

the treatment advocated further than by speaking of "minor pelvic attacks."

II.—CANCEROUS TUMOUR OF THE CERVIX, REMOVED IMMEDIATELY AFTER LABOUR, WITH MICROSCOPIC SECTION.

DR. SAMUEL SLOAN.

The specimen shown was essentially the anterior lip of the os, invaded by tumour tissue, and with an extremely narrow margin of soft tissue left on the anterior part of the cervix. The patient had been seen by Dr. Sloan on the 2nd of November, he having been called in consultation on account of hæmorrhage which had taken place on the preceding day. There had been no other symptom of cancer. Solution of perchloride of iron was applied, and the hæmorrhage had not returned before labour began on the 15th November. Dr. Sloan had been then again summoned, and, though at his previous visit he had advised that treatment of the cancer should be delayed till six weeks after delivery, he had taken everything with him, so that he might operate if thought advisable. Labour had been assisted by dragging the head through the hardened cervix very gradually; with care, they had got the healthy part of the cervix to dilate without any laceration taking place; but so tedious had been this process, that they had nearly sacrificed the child, it requiring about fifteen minutes for resuscitation.

Examination made immediately after delivery had shown the posterior lip to be converted into nodules of cancerous tissue, which extended also to either side; the anterior lip was affected as already shown, but it had been ascertained, by examination with a sound in the bladder, that sufficient soft tissue was left to permit of its removal. With Paquelin's cautery he had separated along this line of soft tissue, permitting the bladder to escape. He had then curetted the posterior lip with his finger.

The patient had been examined lately by her medical attendant, who reported that there was merely a band to be felt at the posterior lip.

Dr. Milroy had made microscopic examination of the parts removed, and reported the growth to be midway between "cauliflower" cancrioid and scirrhus.

Dr. Murdoch Cameron remarked on the care which Dr. Sloan had taken that there should be no laceration of the cervix, and, referring to the fact that laceration of the cervix is generally regarded as a source of septicæmia, asked if the

time chosen for operation (immediately after delivery) had not therefore been a bad one. If they had delayed they might also have been able to get away the posterior part of the affected lip better.

Dr. Oliphant asked if the cancerous part had dilated.

Dr. Sloan had not noticed any difference in it, but could not say definitely. It was usually understood not to dilate, and the probability was that it had not in this case, as dilatation of the os was so very much more tardy than would have been expected in the patient, who was a multipara.

In answer to *Dr. Gray*, *Dr. Sloan* said that the patient was a healthy looking woman; there had been no symptom of cancer except the hæmorrhage.

Dr. Stirton had operated repeatedly in similar cases, but the disease had returned in all, with the exception of one, in which, however, the operation was performed only fifteen months ago. In reply to a question from *Dr. Sloan*, he answered that, so far as his experience went, the present tumour was of the usual consistency.

Dr. Sloan, in reply, remarked that *Dr. Cameron* inclined to the opinion that he should have waited as he had intended; but at the time of delivery he had come to think that a cauterised surface would be less likely to absorb than the diseased surface, and thus he had proceeded to operate. The result had confirmed this view. He ought to have said that on the left side the cancerous disease had extended into the pelvic connective tissue. He knew that he had only partially removed the diseased parts, but the doctor's examination had shown that he had been so far successful. He had wished merely to make the patient's life more comfortable, and had warned his friends that the disease would return.

III.—VARIOUS MENSTRUAL MEMBRANES, WITH MICROSCOPIC SECTIONS.

DR. SAMUEL SLOAN.

(1) *Pieces of Virginal Menstrual Membrane*.—*Dr. Sloan* had had opportunity of seeing membranes passed at several periods from this case, and they had been getting smaller—perhaps as a result of treatment by ichthyol.

(2) *Nulliparous Menstrual Membranes*.—Membranes were shown from three periods—the last one (obtained about a week previously) was triangular; the others were irregular masses. The patient here also was under treatment by ichthyol.

IV.—MICROSCOPIC SECTION OF DECIDUAL MEMBRANE NINE DAYS AFTER MISSED PERIOD.

DR. SAMUEL SLOAN.

Dr. Sloan said that under the microscope this specimen showed a good section of a uterine gland, and that the gland was wavy. He would ask if this waviness was an indication of pregnancy, as the glands were usually straighter.

V.—CHYLOUS URINE FROM AN INFANT SEVEN MONTHS OLD.

DR. SAMUEL SLOAN.

The appearance of this urine to the naked eye and under the microscope was, Dr. Sloan said, very like milk, but it gave no reaction on being tested for albumen; on being allowed to stand, oil floated up to the surface, and the presence of oil had been further proved by removing it by means of ether. When the fat was thus separated the remaining fluid was much less thick. Thirty hours after being passed the urine was putrid and *acid*. Unless he had known the lady well who gave him the specimen, he would have been led to doubt its genuineness.

Dr. Gray asked the specific gravity.

Dr. Sloan replied that he had forgotten to take it, but could do so yet.

Dr. Oliphant asked for what length of time such urine had been passed.

Dr. Sloan replied that there was only the one specimen.

VI.—SIX CASES OF ACCIDENTAL HÆMORRHAGE.

BY ROBERT JARDINE, M.D., M.R.C.S.

Dr. Jardine's paper will be found at page 417.

Dr. Stirton said that he had listened with much interest to this paper on a very difficult and doubtful subject as regards treatment. He believed that of the two hæmorrhages this was the more dangerous, because there were usually several hæmorrhages, and, though there might be only escape of the serous part of the blood, clot after clot formed, and the presence of these clots made the case hazardous. He agreed with Dr. Jardine that in such cases, even at such a comparatively early period of pregnancy as the seventh month, if there had been one or two external hæmorrhages, or if there was local pain indicating concealed hæmorrhage, one ought to act at once. If, for example, one hæmorrhage had taken place and the

patient had rallied, but a second hæmorrhage occurred—they must get the child away. He had seen four cases recently—only one of them had recovered. The three, which were lost, died not from hæmorrhage, but from general metritis. He would be very glad to confer with Dr. Jardine as to the treatment of such cases. He did not like to launch any paper on that treatment without thought, and he had come there that evening specially to hear what would be said upon the subject.

Dr. Oliphant asked Dr. Stirton how long the three cases he had mentioned had survived.

Dr. Stirton—About a week. The one who recovered passed two flattened clots just like pancakes.

Dr. Sloan (to Dr. Stirton)—Was there any accident or disease to bring on the hæmorrhage in your cases?

Dr. Stirton replied that he could not answer that question fully without his notes. In the one who recovered, the cause of the hæmorrhage was frequent child bearing with the placenta forming over the same site, separation being thus very liable to occur.

Dr. Gray remarked that one of Dr. Jardine's cases had been a primipara.

Dr. Sloan asked Dr. Jardine if all his cases had belonged to the class in society specially liable to syphilitic infection from their husbands.

Dr. Jardine—No; not all.

Dr. Murdoch Cameron referred to the interest with which he had listened to the paper. He raised the question of concealed hæmorrhage taking place into the amniotic cavity, and spoke of the importance of the study of diseases of the placenta, suggesting that they should receive further consideration in the proceedings of the Obstetrical Society. Hæmorrhage from the placenta might take place from the presence of endometritis. He had seen cases such as Dr. Jardine had detailed to them, and his treatment had always been to terminate the pregnancy, whether in accidental hæmorrhage, or in placenta prævia, if the bleeding were at all serious. Recently he had seen a patient supposed to have accidental hæmorrhage, but who really had a hydatidiform mole. If in such a case the treatment adopted were merely such as attempted to check the hæmorrhage, the delay would be most harmful, and the removal of the mole might be postponed till the patient was too weak to undergo the operation.

Dr. Oliphant asked Dr. Cameron if he meant that, in

hæmorrhage from threatened miscarriage, he would induce labour.

Dr. Cameron—Yes, if the hæmorrhage were serious.

Dr. Sloan—And in the early hæmorrhage from placenta prævia?

Dr. Cameron said that he meant serious hæmorrhage of any sort during pregnancy. He might narrate a case he had seen, though it had not a direct bearing on the subject of the paper. The patient was four and a half months pregnant; she had had continuous discharges of blood; the placenta was reached by the finger, and was situated on the anterior wall. Opium had failed to lead to dilatation of the os. She was put under chloroform, and dilatation attempted in vain. The anterior wall of the uterus became distended. The finger was introduced into the os, the membranes ruptured, and a leg brought down; the leg separated and came away. He had reintroduced his finger into the os, when, with a strong pain, foetus and placenta were shot past his hand into the bed, having come through the anterior wall of the cervix.

Dr. Stirton—By a rupture?

Dr. Cameron—Yes.

Dr. Sloan—And you had already partly delivered through the os? Did she make a good recovery?

Dr. Cameron—Yes.

Dr. Sloan—Was the uterus much anteverted, with the os far back?

Dr. Cameron—No.

Dr. Gray—Did the tear reach into the os?

Dr. Cameron—No.

Dr. Gray—Did it heal up?

Dr. Cameron—Yes.

Dr. Stirton—Was it transverse to the mother's body?

Dr. Cameron—Yes.

Dr. Sloan—Had the anterior wall felt thin?

Dr. Cameron—Yes, and bulging.

Dr. Sloan, referring to *Dr. Jardine's* paper, agreed with *Dr. Stirton* as to the danger of septicæmia if any clot were left behind in the uterus. He agreed, also, in general with *Dr. Cameron* as to treatment, but would make that depend on the amount of hæmorrhage.

Dr. Jardine, in reply, thanked the meeting for the manner in which his paper had been received. With *Dr. Stirton*, he believed that the only course open was to clean out the uterus, especially if the hæmorrhage were concealed. He referred again to the importance of the pain in "concealed"

cases. Both of his cases complained much of it, though in one, as the patient was hysterical, it was difficult of estimation, as there was nothing else at first to indicate bleeding. In none of his cases had there been subsequent pelvic mischief; the nurses had been cautioned as to great care being exercised in regard to antiseptics.

VII.—FIBRO-CYSTIC TUMOUR OF UTERUS.

BY DR. H. ST. CLAIR GRAY.

Dr. Gray showed a large fibro-cystic tumour of the uterus, which he had removed by abdominal operation.

VIII.—A SUCCESSFUL CASE OF VAGINAL EXTIRPATION OF THE UTERUS, WITH A COMPARISON OF THE RELATIVE MERITS OF THE HIGH AND LOW OPERATIONS IN CASES OF CANCER OF THE CERVIX.

BY DR. H. ST. CLAIR GRAY.

Dr. Gray's paper appears as an original article at page 423.

Dr. Sloan asked if the cancerous disease had invaded the cervical cavity or the vagina.

Dr. Gray replied that it had slightly involved the posterior wall of the vagina, and had also extended slightly into the cavity of the cervix. He was sorry that the patient had not come to show herself as promised. She was now in very good health indeed.

Dr. Stirton said that he had not had such good results as regards subsequent health. He had performed this operation twice—one of the patients living for fifteen months, and then dying in misery; the other being still alive (three years after operation), but suffering much from her bladder and rectum.

Dr. Oliphant asked why the rectum now gave her trouble.

Dr. Stirton—On account of contraction.

Dr. Sloan—Is there cancer of the rectum?

Dr. Stirton replied that there was none to be felt with the finger. In his next case he would operate by first of all removing half of the sacrum; then one obtained a good view of the uterus and surrounding parts.

Dr. Murdoch Cameron considered that Dr. Gray was to be congratulated on the success of his operation. In London this was now the recognised operation, Dr. Bantock and Dr. Cullingworth performing it regularly with remarkable success. In Glasgow they had to fight against the views held in high circles; their leading surgeons would not perform it, and the

Professor of Midwifery did not believe in it, while the younger men had not many opportunities for trial. In that connection he would urge the necessity for a small "home" to which one could take this class of patient. He would ask Dr. Gray what had been his proportion of favourable cases.

Dr. Gray had only had two cases—the one just recorded, and another in which he had to stop in the middle of the operation, as he found cancer of the broad ligament, and in which death took place thirty-six hours afterwards.

Dr. Cameron, continuing, said that what they wanted was to follow up clear cases of cancer—not such cases as were operated on in Germany. No doubt some of them succumbed to cancer in the liver and elsewhere; and the question was whether cancer could be removed by the removal of one organ. If this could be determined by operation in a number of cases, much good would be done.

Dr. Oliphant drew attention to the distribution of the lymphatics in connection with the uterus, and to the influence of their distribution on the mode of extension of cancerous disease.

After some discussion as to the manner of closing the vault, in which part was taken by Dr. Stirton, Dr. M. Cameron, and Dr. Gray,

Dr. Sloan spoke of the object of the operation, and remarked on the difficulty of diagnosing cancer in early cases. He referred also to the fact that in pelvic cancer one could not remove tissue so freely as in cancer, for example, of the mamma, in which latter case, also, one could scoop out the glands.

ABSTRACTS FROM CURRENT MEDICAL LITERATURE.

NERVOUS DISEASES AND INSANITY.

BY DR. R. S. STEWART.

Association of Tabes with Saccharine Diabetes. By Guinon and Souques (*Archives de Neurologie*, November, 1891, January and March, 1892).—The following conclusions are drawn by these writers on this question of the relationship of tabes and diabetes:—

1. There exist cases of association of true tabes with undoubted saccharine diabetes.

2. This association of tabes with diabetes in one and the same individual, as

in one and the same family, is not a fortuitous coincidence. It is the consequence of the intimate bonds of relationship which unite the two great families, the arthritic and neuropathic in general, diabetes and ataxia in particular.

3. To establish the diagnosis of these cases of association, and to separate them from diabetic pseudo-tabes, and from tabetic glycosuria with which they may be confounded, it is necessary to proceed in the following manner:—In the case of an undoubted diabetic presenting tabetiform nervous signs, if the antidiabetic treatment brings about an amendment of these nervous signs along with improvement in the diabetes, pseudo-tabes may be affirmed, but if the contrary happen the presumption is in favour of true tabes, and the existence or subsequent appearance of certain tabetic signs (inco-ordination, vesical and ocular troubles) transforms this presumption into a certainty. In the case of an undoubted tabetic, on the other hand, whose urine contains sugar, if the glycosuria is accompanied by anaesthesia in the region of the trigeminal, by frequency of pulse, and laryngeal and respiratory crises, it is under the dependence of the progressive locomotor ataxia, but if these concomitant signs are wanting, the probabilities are strongly in favour of the diabetic origin of the glycosuria.

The Blood-vessels of Nerves. By Quénu and Lejars (*Archives de Neurologie*, January, 1892).—The principal characters of the arterial circulation of nerves are as follows:—

The superficial nerves are all accompanied in their entire length by an arteriole, which lies alongside, and prolongs itself by a series of archings. They thus form the principal guiding lines of the subcutaneous arterial system. Each nervous trunk receives its arteries from constant sources, and from this there result often physiological or morbid connections of great importance.

A nerve trunk never receives all its arteries from a single arterial trunk. All the conditions which, in the nerve-centres, prevent the direct and sudden afflux of blood, are to be found in the nerves.

The venous circulation presents the following characters:—The veins of superficial nerves all empty themselves into the deep veins; when they communicate with the superficial veins it is only by an anastomosis of small size, the deeper communication being always present. The veins of nerves forming part of an arterio-venous group empty themselves sometimes into a large neighbouring vein, sometimes into the network of the vaso-vasorum which surround an artery, but mostly into the muscular veins.

Progressive Facial Hemiatrophy. By Popoff (*Archives de Neurologie*, November, 1891).—The case recorded here is that of a girl whose history presented no trace of neurotic or psychopathic predisposition. At the age of 17 it was remarked that the right side of the face was always paler than the left, even during blushing. At 21, hollowing of the temporal region was noted, and that was followed in 2 years by intense pain in the teeth on the right side of the lower jaw, and wasting of the right side of the face. At the age of 25, when she came under observation, the condition was characterised by the following symptoms:—Atrophy of the temporal, masseter, buccinator, supraspinatus and trapezius muscles, of the bony structures of the right side of the face, and of the subcutaneous adipose tissue, thinning and dryness of the skin with absence of hairs, atrophy of the right side of the nose, of the corresponding half of the tongue and palate, caries of the teeth relatively more pronounced on the right side, increase of electrical reaction without qualitative change, absence of any abnormality as regards the pupils, the large vessels of the neck and face or sensory functions.

The writer indicates that the cases already recorded resolve themselves into several classes. One large division includes those in which the condition is dependent on an affection of the fifth pair (usually the result of traumatism). In another class the symptoms indicate the dependence of the disease on an

affection of the sympathetic, while a third variety, of which the present case is an illustration, forms a connecting link between these two. A bibliographic index is included in the article.

Facial Hemiatrophy. By Preobajenski (*Archives de Neurologie*, March, 1892).—The patient was presented at the meeting of the Society of Alienist and Neurologist Physicians of Moscow in March, 1891. The affection depended on injury of the left fifth nerve, resulting from an abscess behind the ear at the age of 14, and was characterised by progressive atrophy of the skin, fatty tissue and osseous structures, without implication of the muscles of mastication or expression, alteration of the salivary, lachrymal, or sweat secretions or pupillary abnormality. The trophic fibres specially are involved, and there is no complication on the part of the sympathetic.

Facial Hemiatrophy Accompanied by Scleroderma. By Mouratoff (*Archives de Neurologie*, March, 1892).—This case was presented at the meeting mentioned above. Tonic and clonic spasms, first of the right masseter, then of the left, occurred at the age of 12, and at 17 white spots appeared on the back and face, and these became later on pigmented, the skin becoming hard and rigid, with strongly injected veins. At 30, the right face began to atrophy, and a year afterwards the tongue became wasted. Electric contractility slightly increased on the right side. Sensibility and pupils unaffected. The peculiarity of this case is the combination of hemiatrophy with scleroderma and trismus.

A Case of Progressive General Paralysis of very Early Commencement. By Charcot and Dutil (*Archives de Neurologie*, March, 1892).—The symptoms in this case appeared first at the unusually early age of 14, and the further development of the affection leaves practically no doubt as to the correctness of the diagnosis. All the essential symptoms were present, profound impairment of the intelligence, speech embarrassment, pupillary inequality with the Argyll-Robertson sign, trembling of the hands, congestive seizures and attacks of sensory epilepsy. This precocious or *juvenile* variety presents, the writers think, some peculiarities which distinguish it from the ordinary or normal type. Occurring most often at the critical epoch of puberty (14 to 16), psychical troubles are the first to appear, and one of the most marked features is an arrest of physical development. The mental condition is in the majority of cases one of simple tranquil debility, without excitement or ambitious delirium, and much resembles that occurring in the general paralysis of women. Its duration varies from two to five years. The chief factors in the etiology are hereditary neuropathic predisposition and congenital syphilis.

Chloride of Gold and Sodium in Progressive General Paralysis. By Boubila, Hadjes, and Cossa (*Annales Medico-Psychologiques*, January to April, 1892).—This agent has no curative influence in general paralysis, but is useful in the early period, increasing the chances of remission, and in the later stages it tends to retard the fatal termination. Its administration is followed by an increase of red corpuscles and of body-weight.

Localised Symmetrical Intermittent Asphyxia of the Extremities occurring in a Melancholiac. By Targowla (*Annales Medico-Psychologiques*, May and June, 1892).—Various types of vaso-motor disorder occur not infrequently in melancholiacs, but the form which this assumed in the case here recorded is an unusual one. It was characterised by attacks in which the second and third phalanges of the fingers of both hands, the thumb excepted, sometimes as the result of exposure to cold, but often without any obvious exciting cause, became first of a livid hue, and afterwards presented a white cadaveric tint. These occurred two or three times in the course of a day, affected both hands simultaneously, were unaccompanied by

any painful sensations, and lasted from a few minutes to half-an-hour. The affection is described by Raynaud as local asphyxia, and forms the first stage of symmetrical gangrene. As the attacks commenced three years prior to the onset of the melancholia, they are not considered as in any way dependent on the latter. In the writer's opinion the two affections are to be attributed to a common cause. When the trouble occurs in the encephalic circulation, it manifests itself by an attack of melancholia; localised in the extremities, it produces intermittent asphyxia.

Derby Borough Asylum: Third Annual Report.—Of the 138 cases admitted during 1891, mental depression succeeding an attack of influenza was given as a cause in four instances, and an outbreak of this epidemic disorder occurred in the months of April and May, attacking the staff in two and a half times the proportion of the patients, and prevailing more commonly among the women than the men, but not directly causing death in any instance. The recovery rate of 43·7 per cent of the admissions is very creditable, but the death-rate is again unusually high, being 16·6 per cent of the daily average number resident. Dr. Macphail again urges the importance of early treatment in mental affections, and the figures given in his report show very clearly the influence of the duration of the disorder upon the recovery rate.

Holloway Sanatorium: Sixth Annual Report.—Since its opening there has been a steady increase in the number of patients treated in this Hospital. The recovery rate of 54·9 per cent of the admissions, and the death-rate of 6·6 per cent of the average daily number resident, are both highly creditable. A limited number of selected patients have been boarded out with employees of the Hospital, and Dr. Phillips expresses himself as satisfied with the results. Of the 355 patients in residence at the end of the year, the rate of payment was over 42s. for 99; from 25s. to 42s. for 159; and from nothing to 25s. per week for 97.

PATHOLOGY AND BACTERIOLOGY.

By R. M. BUCHANAN, M.B., C.M.

Diabetes Mellitus and Lesions of the Pancreas. Williamson (*Medical Chronicle*, March, 1892).—Do lesions of the pancreas play any part in the causation of diabetes mellitus? Recent experiments on animals have reawakened the interest in this interesting problem. From the days of Cowley (1788), who founded the theory that diabetes mellitus was due to disease of the pancreas upon a case which showed atrophy of the organ, many observers have pointed out the frequent occurrence of pancreatic lesions in diabetes.

Dr. Williamson gives an account of two cases which afford good examples of the changes which are found in the pancreas in certain cases of diabetes.

In Case I (in which there is a history of alcoholism) the pancreas was very firm and hard, firmly adherent to, and very difficult to separate from, adjacent parts. It weighed 4½ oz. The cut surface was pale and very firm, and showed several small cystic dilatations of the duct containing mucous fluid and small calculi of a mortary consistence. The pancreatic tissue appeared to be broken up into very small round or irregular masses, surrounded by broad tracts of fibrous tissue. Sections under the microscope showed in many parts only a few small clusters of pancreatic cells in a field of dense fibrous tissue. In other parts the cells were in larger masses, associated with one or two small ducts. These masses were separated from each other by a large amount of dense fibrous tissue, which was apparently encroaching on the gland

cells. No abnormality was detected in the liver, nor in the medulla and pons, "with the exception of very slight dilatation of the blood-vessels at the posterior part, near the floor of the fourth ventricle."

In Case II the pancreas was very much atrophied, exceedingly soft and flabby. It weighed $1\frac{1}{2}$ oz. (normal, $2\frac{1}{2}$ to $3\frac{1}{2}$ oz.). Section of the gland, after hardening in Müller's fluid, showed small pale points scattered through the gland tissue. In these paler portions marked fatty degeneration appeared under the microscope, the degeneration localising itself in the cells at the centre or periphery of a lobule, or in groups of cells here and there in the lobule.

Further evidence of a pancreatic lesion in cases of diabetes is adduced in a collection of a hundred cases from medical literature. The author classifies the changes met with in these cases, and it may be computed from the classification that in 86 per cent the lesions were similar in nature to one or other of the two cases above related, while 14 per cent included cancer, abscess, pancreatitis, and calcification.

On the Etiology of Diphtheria.—A. Baginsky (*Berl. Klin. Woch.*, 29th February, 1892) recently undertook the examination of the reported cases of "diphtheria" admitted to the Kaiser- und Kaiserin-Friedrich-Kinderkrankenhaus, with regard to the question whether Loeffler's bacillus is to be found in all cases. (A similar investigation is reported by Roux in the fifth volume of the *Transactions of the Tenth International Medical Congress*). A piece of membrane was removed by forceps, washed in a 2 per cent solution of boracic acid for some minutes, and rubbed over a sloping surface of solidified blood serum in tubes (Loeffler's formula—3 blood serum; 1 bouillon, with 1 peptone and 0.5 chloride of sodium; 1 grape sugar). The tubes were placed in an incubator at 37° C. By this method (1) the microbes accompanying the bacillus of diphtheria were so far suppressed that the bacillus developed almost, if not quite, as a pure culture; and (2) the growth of the bacillus even after a few hours was quite characteristic, and with some practice was quite recognisable with the naked eye. There were examined by this means 154 cases. Loeffler's bacillus was found without doubt in 118, and of these 45 died, 39 were complicated with paralysis, and 17 with septic phenomena.

In the 36 remaining cases the diphtheria bacillus was not demonstrable, and only cocci were found in the cultures. Of these cases only 4 died. One was a case of severe diphtheritic paralysis, and was presumably a true case of diphtheria from which the local conditions in the throat had disappeared. One was complicated with measles and pneumonia, and the other two succumbed with double empyema.

Dr. Baginsky is led by these observations to recognise two forms of the disease which, although clinically indistinguishable, yet *toto calo* differ from one another—the one produced by the diphtheria bacillus and highly dangerous to life (causing death in almost 40 per cent), the other produced by cocci (staphylococcus and streptococcus), and running its course without much endangering life. The designation "diphtheroid," suggested by the French school, is considered appropriate for the second form.

The Gonococcus in Pure Culture.—Gebhard (*Berl. Klin. Woch.*, 14th March, 1892). The artificial cultivation of the microbe of gonorrhœa has hitherto been regarded as one of the most difficult tasks in practical bacteriology. The method published by Bumm in 1885 was of such a nature that few were able to obtain his results. An important advance was made by Wertheim in 1891, in that he showed the possibility of obtaining pure cultures from gonorrhœal pus by the plate method. Gebhard has made cultures successfully from eight cases (one of them being a case of ophthalmia neonatorum). He used, with some modifications, the nutritive medium prescribed by Wertheim—namely, a mixture of equal parts of human blood serum (obtained from retro-placental blood) and agar-jelly (*Fleischinfuspeptonagar*). The plates are kept at the body temperature, and at the end of twenty-four

hours very small whitish-yellow colonies are distinguishable amongst other kinds. These continue to grow for a week or two, assuming about the third day a characteristic microscopical appearance. Each one appears, when magnified about fifteen times, as a sharply bounded irregular mass, with a finger-like projection from the centre. The individuals of such a colony are seen as irregular hemispheres varying in size, frequently arranged in fours, and staining readily with the aniline dyes, but not by Gram's method. The coccus here described cannot grow on the ordinary nutritive media, and thrives but poorly on blood serum alone. Inoculated on the mucous membrane of the human urethra, it produced a purulent catarrh, running the clinical course of gonorrhœa, and showing in the catarrhal products gonococci.

A Method for obtaining Pure Cultures of Tubercle Bacilli from the Sputum.—Pastor (*Centralblatt für Bacteriologie und Parasitenkunde*, 27th February, 1892). The slow growth of the tubercle bacillus on artificial media, and the fact that it does not thrive on ordinary nutrient gelatine, are taken advantage of by Dr. Pastor in a rather ingenuous manner to obtain pure cultures. The sputum is shaken up with pure water, and filtered through muslin; a 10 per cent nutrient gelatine is then inoculated, with a drop of the filtrate poured on plates, and kept at the room temperature. In the course of three or four days colonies of the other bacteria of the sputum will have become distinct, leaving clear intervening areas of gelatine in which no growth is evident. With a sterilised knife these clear portions of the gelatine layer are cut out, and rubbed over the surface of solidified blood serum. Ten tubes so inoculated will yield on an average two to four pure cultures of the tubercle bacillus. With the fluid contents of phthisical cavities better results are of course obtained, since the material is richer in the tubercle bacillus, and contains other species in less number than the sputum.

Eberth's (Typhoid) Bacillus as a Pyogenic Organism.—This organism appears now to have definitely established itself as an agent capable of exciting suppuration, although, curiously enough, no mention is made of this property in the last (1891) edition of Eisenberg's work on *Bacteriological Diagnosis*. One of the well known sequels of enteric fever is periostitis, most frequently of the tibia, and sometimes going on to suppuration. In an abscess of this kind, Achalmé (quoted in *British Medical Journal* of 11th October, 1890) found Eberth's bacillus and no others. The cultivations on potato and the results of inoculation experiments were quite typical.

Another sequel of enteric, not so well known, and not described in Murchison's work, nor in the ordinary text-books, is suppuration of the epididymis, or more commonly of the body of the testis. Girode (quoted in *British Medical Journal* of 6th February, 1892) records a case of this kind, where epididymitis supervened at the beginning of the third week of the illness. Death ensued five days later from pulmonary complications. The autopsy showed the characteristic lesions of enteric, and purulent foci were found in the epididymis. Eberth's bacillus was demonstrated in the pus and in sections, by cultivation in different media, and by inoculation in animals. The pus was situated between the tubules, and there was no urethritis.

Again, M. Kelsch (*La France Médicale*) had a patient, aged 22, affected with left hæmorrhagic pleurisy. Fluid withdrawn from the chest contained Eberth's bacillus and no other organism. Inoculation in animals produced a pleurisy similar to the original one. This latter subsequently became purulent, and the pus was found to contain only the one form of organism. Some time later the patient died of tuberculosis, and at the *post-mortem* none of the ordinary lesions of enteric were found.

This case, and other analogous ones published by different observers, satisfy Kelsch that typhoid fevers which, at their onset, so far as the clinical features are concerned, are due to disease of the pleura, may be directly excited by Eberth's bacillus, and are not invariably premature secondary infections. No

doubt, in the case just recorded, the fluid in the pleura contained the tubercular virus, but the results of the inoculation of pure cultivations showed clearly that Eberth's bacillus was the efficient agent in causing the pleurisy.

The absence of the usual lesions of typhoid fever proves also that the bacillus of enteric is capable of giving rise to pleurisy just like any other inflammatory agent. This might lead us to ask, continues M. Kelsch, whether this organism is not the exciting cause of still more diverse processes; and so we might be induced to call in question the specific character of these processes, and thus return to medical doctrines which were in vogue more than a century ago.—T. K. M.

GYNÆCOLOGY AND OBSTETRICS.

By E. H. LAWRENCE OLIPHANT, M.D.

Resection of Ovaries and Tubes (*Verhandl. d. Deutsch. Gesellsch. f. Gynäkologie*, 1891).—A. Martin gives his experience of resection of ovaries and tubes, and expects that the operation will soon be recognised generally as a proper one. It is designed for the purpose of retaining for the woman her functional capacity. When, on removing one ovary or one set of adnexa, the other is found only partially involved in the disease; it need not be wholly removed. The diseased part of the ovary or tube is resected, and the remaining part is left, an artificial ostium abdominale being formed in the case of the tube. His results of resection of ovaries are—21 cases, 1 death from peritonitis. Of the 20 survivors, 5 have become pregnant, one operated on in May, 1888, having had 3 children. He has had 24 cases of resection of tubes—1 death from general infection of the peritoneum by gonococci. Of the 23 survivors 1 became pregnant, but aborted in the third month.—J. K. K.

Discharge of the Bones of a Dead Embryo from the Bladder, Vagina, and Rectum, several years after Pregnancy.—The *Sei-I-Kwai Medical Journal* of Tokyo, Japan, tells of a woman, æt. 37, whom Dr. Inouye was called to see in November, 1890. In 1885, she had had a severe hæmorrhage from the uterus, followed by a discharge of white matter mixed with blood-clots. This ceased after a month, and then the abdomen began to swell, but the swelling subsided again spontaneously. In March, 1890, patient was seized with severe pain in the abdomen, accompanied by high fever, and a fetid, sanguineous discharge commenced. When Inouye saw her in November, he found her weak and emaciated. There was a hard oval tumour in the abdomen to the left of the umbilicus; this was so tender, however, on palpation, that it could not be properly examined. Some days afterwards the hard mass softened, and the pain was relieved, this being followed by the discharge of 38 embryonic bones from the anus, 1 from the vagina, and 33 from the urethra. The bones, which were white or dark-coloured, were quite free from soft tissues, and seemed to be those of a fœtus at the end of the eighth, or beginning of the ninth month. The woman would not consent to an operation, and she died from marasmus in February, 1891.—T. K. M.

An Obstetrician's Generous Offer.—The *New York Med. Journal* for 3rd October, 1891, under this heading, announces that Professor Tarnier does not forget the lowly village where he was born—Arc-sur-Fille. He has observed with grief the diminishing natality of his nation, and has determined to give a practical expression to this feeling in a novel manner. He has promised a gift 100 francs (£4) to every family at Arc-sur-Fille which shall have contributed an infant to the population of France during 1892. This is an original way of causing married people to reflect on one branch of their

duties in life, but the villages in question can have no reason to complain that they have not received a timely warning.

Determination of Sex.—The *Dublin Journal of the Medical Sciences* for March, quoting from *La Sperimentale*, says that "Dr. Serrano Montanel, of Valparaiso, read a paper before the last Chilean Medical Congress on the procreation of either sex at will. After four years' observation, he had satisfied himself that we can pronounce upon the sex of an unborn fetus if we know the number of menstruations which have occurred between the preceding delivery and the present pregnancy. If between the birth of one baby and the conception of the next an even number of menstruations have taken place, the second will be of the same sex as the first; if an uneven number, of different sex. This theory assumes the identity of menstruation and ovulation, which few accept, and also that ova discharged are of alternate sexes."

The Treatment of the Graver Forms of Pelvic Suppuration by the Intraperitoneal Iodoform Tampon.—Dr. Charles K. Briddon read a long paper on this subject before the New York Surgical Society (*New York Medical Journal*, 21st November, 1891). He describes in detail a series of eight cases operated on for pelvic suppuration. One of his patients was a woman, aged 29, who had suffered from puerperal septicæmia four years previously. Since then she had thrice miscarried, and had suffered from repeated attacks of pelvic inflammation. In one of these she was admitted, her temperature being 103°, and she was suffering from severe pain. Examination revealed a firm mass occupying the left half of the pelvis. At the operation, the uterus was found firmly fixed in a mass situated, presumably, in the left broad ligament, and passing beyond the mesial line posteriorly. The ovaries and tubes were not distinguishable, and the matting together of the parts was so dense, that at no point could the finger be insinuated to begin enucleation. The surface was cautiously scraped through, and the finger was pressed downwards till the distended tube could be recognised. In attempting to release this, the sac was ruptured, and 6 or 8 oz. of foetid pus escaped, which was quickly caught on sponges. The mass was then drawn to the surface, and was found to be adherent to the rectum, which was completely torn across at the junction of the lower and middle thirds. Even when brought outside the abdominal wound, it was found impossible to dissect off the adherent tube completely; a piece the size of a silver dollar was left adherent. It was decided, meanwhile, to make an artificial anus, so the torn rectum was stitched to the abdominal incision. The pelvic cavity was freely flushed with hot water, carefully sponged, and then the lower portion of the wound was filled with a large glass drain, surrounded by a liberal packing of iodoform gauze. The patient rallied from the shock of the operation. The tube was removed on the third day, and in spite of some infection from the bowel, the wound healed kindly, allowing the operation cavity to contract to a small sinus. Six weeks after the first operation, the continuity of the bowel was restored by operation. After a careful separation of the parts, the right ovary and tube were removed. Half a dozen silk loops were passed through the circumference of the torn end of the lower segment, and it was invaginated by knotting the ends of these long loops, passing them through the anus, and then making traction until about three-quarters of an inch was turned in; then about an equal number of long silk loops were passed through a fresh section of the circumference of the upper segment; these were also passed through the anus, and traction was made until three-quarters of an inch of this portion of the gut was drawn into the invaginated portion of the lower end, where it was secured by a circular enterorrhaphy. The cavity was then filled with iodoform gauze, and the abdominal wound was closed in its upper part. The operation lasted two hours. There was no fecal leakage into the wound, and the patient was discharged six weeks after the operation, having made an uninterrupted recovery. When seen some

time later she seemed perfectly well, though a few weeks after dismissal an abscess formed, and a fistula was left for a time discharging flatus, but this had completely healed.

With the exception of one patient who died of exhaustion seventy-two hours after operation, the remaining seven cases did remarkably well. They are all described in detail.

In his concluding remarks, Dr. Briddon quotes the dictum of Dr. Lawson Tait, that "no operation of this kind should be left unfinished. This rule, if accepted generally, as it is in my practice now completely established, opens up at once a great road for difference of result, rate of progress, and remote effect of the operation. I never hesitate to overcome the most intimate adhesions of an old suppurating tube or ovary to bladder or intestine merely from the fear of a rent of these viscera. In many cases I have had urinary and faecal fistulae remaining for months after an operation, but I have always succeeded ultimately in closing them. Simple suppurating sinuses leading deep down into the pelvis occur probably in five per cent of all cases." Dr. Briddon then goes on to say that with a full appreciation of the matchless skill of the author quoted, he must express the opinion that in a considerable number of the graver cases of pyosalpinx, it is impossible to remove the whole of the pus-secreting surface, and that a failure to do so may protract, but does not militate against, a perfect cure.

Books, Pamphlets, &c., Received.

A Text-book of Morbid Histology, by Robert Boyce, M.B., M.R.C.S.
With 130 Coloured Illustrations. London: H. K. Lewis.
1892.

The Disinfection of Scarlet Fever and other Infectious Diseases. By
J. Brendon Curgenvén, M.R.C.S. London: H. K. Lewis.
1891.

Guide to the Administration of Anæsthetics, by Henry Davis,
M.R.C.S. Second Edition. London: H. K. Lewis. 1892.

Notes on Pathology: A Handbook for the Post-mortem Room, by
the late R. E. Carrington, M.D. Edited by H. Evelyn Crook
and Guy Mackeson. London: H. K. Lewis. 1892.

A Pocket Case-book for Practitioners and Students, by Alex.
Theodore Brand, M.D., C.M. London: Baillière, Tindall &
Cox. 1892.

A Manual of the Dental Laboratory, by Charles Hunter. London:
Baillière, Tindall & Cox. 1892.

How to Feel the Pulse, and What to Feel in It, by William Ewart,
M.D. With Twelve Illustrations. London: Baillière, Tindall
& Cox. 1892.

Colotomy, for Cancer or Stricture of the Large Intestine, by H. W.
Allingham, F.R.C.S. London: Baillière, Tindall & Cox. 1892.

- Lectures on Diseases of the Digestive Organs**, by Dr. C. A. Ewald. Translated by Robert Saundby, M.D. Vol. II: *Diseases of the Stomach*. London: The New Sydenham Society. 1892.
- Transactions of the American Surgical Association**. Vol. IX. Edited by J. Ewing Mears, M.D. Philadelphia, 1891.
- Quain's Elements of Anatomy**. Edited by Prof. Schäfer and Prof. Thane. Vol. II. Part II: *Arthrology—Myology—Angiology*, by Prof. Thane. With 255 Engravings. Tenth Edition. London: Longmans, Green & Co. 1892.
- An Introduction to Modern Therapeutics**, being the Croonian Lectures for 1889, by T. Lauder Brunton. London: Macmillan & Co. 1892.
- Diseases of the Eye**, by G. E. Schweinitz, M.D. With 216 Illustrations and 2 Plates. Philadelphia: W. B. Saunders. 1892.
- Year-book of the Scientific and Learned Societies of Great Britain and Ireland**. Ninth Annual Issue. London: Charles Griffin & Co. 1892.
- Atlas of Clinical Medicine**, by Byrom Bramwell, M.D. Vol. I. Part. IV. Edinburgh: T. & A. Constable. 1892.
- On Gall-stones and their Treatment**, by A. W. Mayo Robson, F.R.C.S. With 20 Engravings. London, Paris, and Melbourne: Cassell & Co. 1892.
- The Student's Handbook of Surgical Operations**, by Frederick Treves, F.R.C.S. With 94 Illustrations. London, Paris, and Melbourne: Cassell & Co. 1892.
- Influenza**, by Julius Althaus, M.D. Second Edition, much enlarged. London: Longmans & Co. 1892.
- On Contractions of the Fingers and on "Hammer-toe,"** by William Adams, F.R.C.S. Eng. With 8 Plates and 31 Wood Engravings. Second Edition. London: J. & A. Churchill. 1892.
- Watt's Dictionary of Chemistry**, by H. Forster Morley, M.A., D.Sc., and M. M. Pattison Muir, M.A. In Four Volumes: Vol. III. London: Longmans, Green & Co. 1892.

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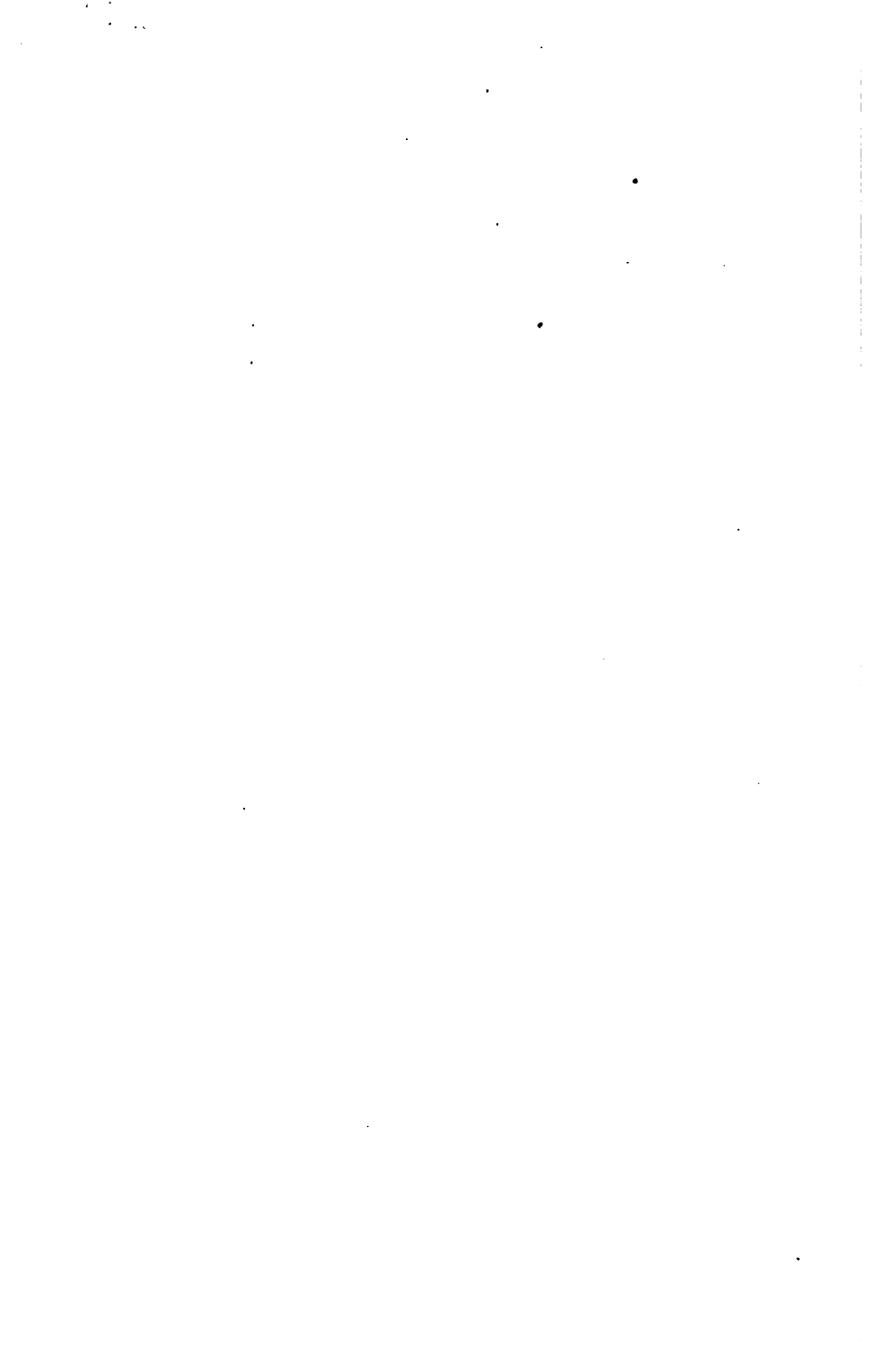
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